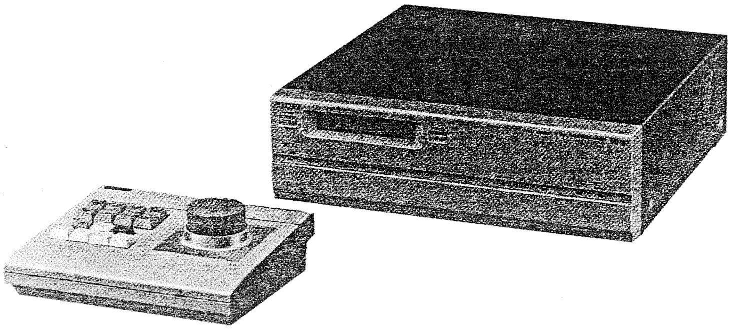
EVO-9650P
RM-9650

SERVICE MANUAL

AEP Model
UK Model



videoHi8

SPECIFICATIONS

Video

Video signal	CCIR standard, PAL colour
Video recording system	Rotary two-head helical scanning
Recording mode	Hi8, standard 8 mm
Playback mode	Automatic detection
Horizontal resolution	400 TV lines (Hi8 mode) 240 TV lines (standard mode)
Signal-to-noise ratio	45 dB (Hi8/standard mode)
Head width	18.5 µm

Audio

Recording system	Rotary 2-head
AFM audio	Monaural
PCM audio	Stereo
Frequency response	30 Hz – 15 kHz (AFM, SP mode) 20 Hz – 15 kHz (PCM)
Dynamic range	Better than 60 dB (AFM) Better than 85 dB (PCM)

Inputs/outputs

Video input	LINE IN: BNC connector (1) 1 Vp-p, 75 ohms unbalanced, sync negative S VIDEO IN: 4-pin mini DIN connector (1) Luminance: 1 Vp-p, 75 ohms unbalanced, sync negative Chrominance: 300 mVp-p, 75 ohms unbalanced
Video output	LINE OUT: BNC connector (1) MONITOR OUT: BNC connector (1) 1 Vp-p, 75 ohms unbalanced, sync negative S VIDEO OUT: 4-pin mini DIN connector (1) Luminance: 1 Vp-p, 75 ohms unbalanced, sync negative Chrominance: 300 mVp-p, 75 ohms unbalanced
Audio input	LINE IN: phono jack (2) Input level –7.5 dBs (0 dBs=0.775 Vrms) Input impedance more than 47 kilohms
Audio output	LINE OUT: phono jacks (2) MONITOR OUT: phono jacks (2) –7.5 dBs (0 dBs=0.775 Vrms) Load impedance 47 kilohms Output impedance less than 2.2 kilohms
Microphone input	Minijack (1), monaural –65 dBs, 4.3 kilohms
Headphone output	Stereo minijack (1), stereo

Control/interface connectors

CONTROLLER	8-pin mini DIN connector (1)
RS-232C	25-pin D sub connector (1) Sony Institutional RS-232C interface
GPI	BNC connector (1)

General

Power requirements	220 – 240 V AC, 50/60 Hz
Power consumption	35 W
Operating temperature	5 – 40°C (41 – 104°F)
Storage temperature	–20 – +60°C (4 – 140°F)
Dimensions	355 × 116 × 404 mm (w/h/d) (14 × $4^{5}/_{8}$ × 16 inches) incl. projecting parts and controls
Weight	Approx. 8.0 kg (17 lb 10 oz)
Video cassette	P5-HMP/HMPX, P5-MP series
Tape speed	SP: 20.051 mm/sec. (recording/playback) LP: 10.058 mm/sec. (playback only)
Recording/playback time	90 minutes with Sony P5-90HMPX (SP mode)
Search speed	–13, –7, –3, –1, –1/3, –1/5, –1/10, –1/30, still, 1/30, 1/10, 1/5, 1/3, 1, 2, 9, 15 times normal speed (with JOG/SHUTTLE)
Digital mode	Slow, 2× zoom, multi-monitor (3×3 matrix display), freeze (frame/field)

Accessories supplied

- Wired remote controller RM-9650 (1)
- Power cord (1)
- Cleaning cassette (1)
- Interface Manual for programmers (1)
- Quick reference-RS-232C commands (1)

Design and specifications are subject to change without notice.

Hi8 VIDEO CASSETTE RECORDER

SONY®

MICROFILM

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

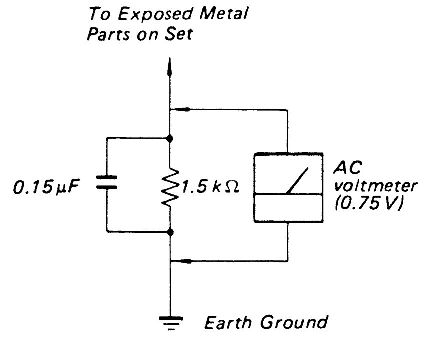


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SECTION 1
GENERAL

This section is extracted from instruction manual.

Features

The EVO-9650P is a professional like videocassette recorder employing the high picture quality Hi8 (high eight) video system and the high audio quality PCM digital recording system.

Single frame recording

The unit can automatically record the picture frame by frame when controlled by a computer. This function is useful when editing a picture created by a computer for animation. Manual frame recording from a video camera is also possible.

Computer control

The unit can be directly controlled by a computer using the Sony institutional RS-232C protocol.

Use of the digital frame memory as a buffer

When the frame memory select button is set to the BUFFER mode, the picture coming in the unit passes through the digital frame memory and then goes to the recorder section. While supplying the picture stored in the memory for recording, the computer can start drawing the next picture immediately.

Use of the digital frame memory as a noise reducer

When the frame memory select button is set to the DNR (Digital Noise Reducer) mode, the playback picture passes through the digital frame memory and is then output from the unit. The YNR (luminance Noise Reducer) and CNR (Chrominance Noise Reducer) operate on the picture passing through the memory to reproduce a jitter-free picture. In addition, various effects can be added to the picture to display as a "digital picture".

Horizontal resolution of more than 400 lines

The Hi8 recording system and the use of high-quality metal tapes designed for Hi8 recording remarkably enhance the picture quality.

Built-in 8mm time code generator/reader

The time code indicates the position of tape by hour, minute, second and frame. While recording, the unit automatically records the institutional 8mm time code together with the video and auido signals. The time code can be inserted separately on a pre-recorded tape. In additon to the institutional 8mm time code, the unit can read the RC time code recorded with other consumer product VTRs.

Technical Information

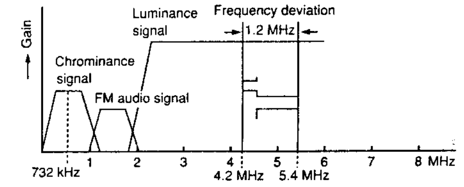
What is Hi8 Video System?

In a new 8mm Hi8 video system, Y (luminance) carrier frequency which carries information on brightness is shifted up 1.5 MHz, and the Y carrier deviation is changed to 2.0 MHz while the conventional deviation is 1.2 MHz. As a result, a wider bandwidth can be used for recording and playback (see below), and a higher quality picture with horizontal resolution of 400 lines or more can be obtained.
To take full advantage of the Hi8 video system, a Hi8 tape is prepared using a metal tape which has characteristics superior to a conventional tape.

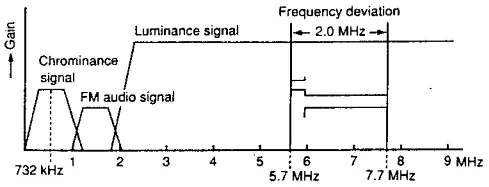
Recording in the Hi8 video system and conventional 8mm video system

The chroma subcarrier frequency which carries information on colours is kept unchanged at 732 kHz.
The frequency of the Y carrier is shifted up 1.5 MHz, and the deviation is widened to 2.0 MHz.

Frequency allocation of the convertional 8mm video system

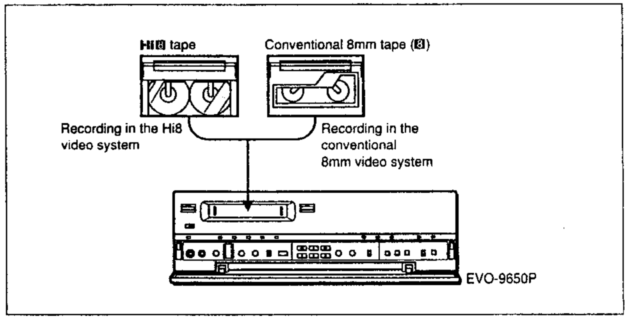


Frequency allocation of the Hi8 video system

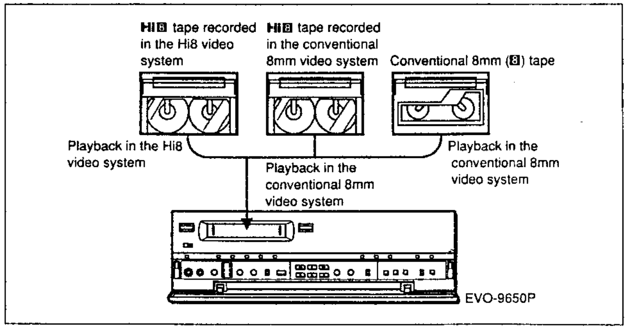


Cassette tape and automatic switching of recording/playback mode

When using a **Hi8** cassette tape for recording, this unit senses the detection holes on the cassette shell (see page 1-7), and automatically performs the recording in the SP mode of the Hi8 video system.
When using a conventional 8mm tape, the recording is performed in the conventional 8mm video system.


Hi8 tape
Conventional 8mm tape (8)
Recording in the Hi8 video system
Recording in the conventional 8mm video system
EVO-9650P

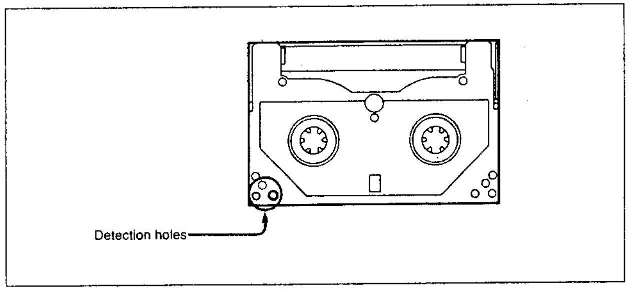
In playback, the unit can detect the system mode used in recording by verifying the recorded signal, and plays back the tape in the appropriate mode.


Hi8 tape recorded in the Hi8 video system
Hi8 tape recorded in the conventional 8mm video system
Conventional 8mm (8) tape
Playback in the Hi8 video system
Playback in the conventional 8mm video system
Playback in the conventional 8mm video system
EVO-9650P

- The **Hi8** indicator on the front panel lights during recording or when a tape recorded in the Hi8 video system is played back.

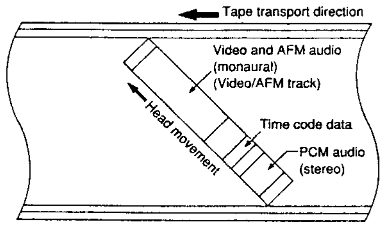
Hi8 cassette tape

This new **Hi8** tape with high durability was specially developed for Hi8 video system recording/playback and features characteristics best suiting the Hi8 video system. **Hi8** cassettes have a detection hole on the bottom of the cassette shell to automatically set Hi8 VTR in the Hi8 video system recording.


Detection holes

8mm Format Video Cassette Tape

The video and audio information are recorded on an 8mm format video cassette tape according to the following allocation. This unit allows recording of the time code as well as other information.



Recording time, playback time

This VTR records in SP mode only, and plays back in both SP and LP modes. When playing back a tape, the mode in which the tape was recorded is selected automatically. The following table shows the recording/playback times of typical 8mm format video cassettes.

Cassette used	SP (recording/playback)	LP (playback only)
P5-30	30 min.	1 hr.
P5-60	1 hr.	2 hr.
P5-90	1 hr. 30 min.	3 hr.

What is a Time Code?

Each scene recorded on a tape can be numbered in units of frame (1/25 second) by the hour, minute, second and frame. This is a time code. The time code is automatically recorded during recording or editing, or it can be recorded separately. Insert editing is carried out by using the recorded time code.

Writable and readable time codes

Writable time code

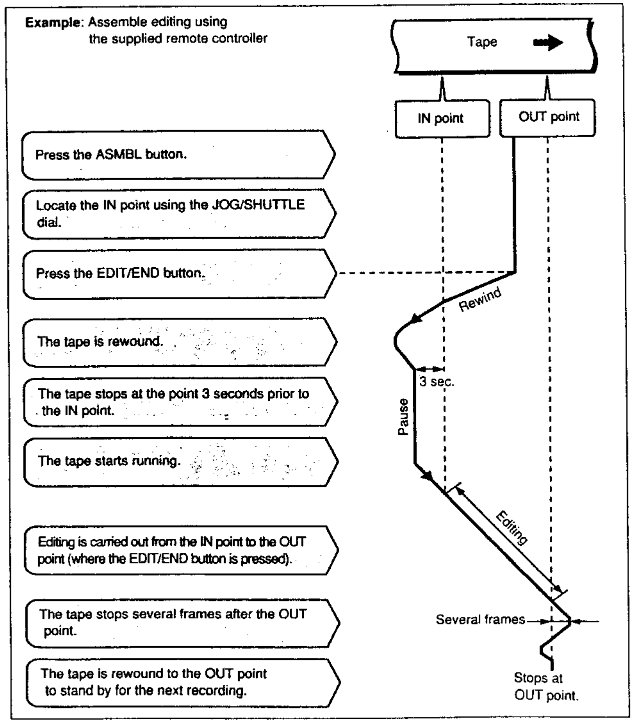
While recording or in the time code insert mode, the unit automatically writes the institutional 8mm time code (not a drop frame time code).

Readable time codes

The unit can read the RC (Rewritable Consumer) time code recorded by consumer product VTRs, in addition to the institutional 8mm time code.

What Is a Pre-roll?

"Pre-roll" is a method designed to run the original tape and the tape to be edited for several seconds (3 seconds for this unit) before the preset editing starting point (IN point), thus making possible highly accurate editing.
The editing accuracy is 0 frames with the institutional 8mm time code recorded with this unit, and ±3 frames without the time code or with the RC time code.


Example: Assemble editing using
the supplied remote controller
Tape
IN point
OUT point
Press the ASMBL button.
Locate the IN point using the JOG/SHUTTLE dial.
Press the EDIT/END button.
Rewind
The tape is rewound.
3 sec.
The tape stops at the point 3 seconds prior to the IN point.
Pause
The tape starts running.
Editing
Editing is carried out from the IN point to the OUT point (where the EDIT/END button is pressed).
The tape stops several frames after the OUT point.
Several frames
The tape is rewound to the OUT point to stand by for the next recording.
Stops at OUT point.

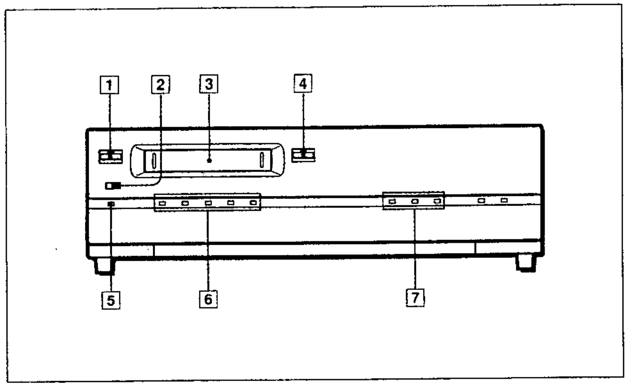
Notes

- During pre-roll, the tape starts running and stops automatically.
- The period required of pre-roll is 3 seconds for this unit.
  Therefore, if there is any recording within 3 seconds from the beginning of the original tape, this part will not be edited correctly. In addition, a blank portion for 3 seconds will be made at the beginning of the edited tape.

Location and Function of Controls

Front

This section names all buttons, controls and connectors and briefly describes their functions. The number after each name indicates the page of the manual where the use of the part is explained in detail.



1 POWER switch and indicator

When the AC power cord is plugged into an AC outlet, this indicator lights in red to show that the unit is in the standby mode.
When the power is turned on, the indicator lights in green.

2 REMOTE/LOCAL selector

To control this unit from a computer connected to the RS-232C connector on the rear, set this selector to REMOTE. All the buttons on the unit and the remote controller become inoperative.
To use the buttons on the unit and the remote controller, set this selector to LOCAL.

3 Cassette compartment

4 ≜EJECT button and indicator (p.3-2)

Press this button to eject the cassette. The indicator lights while the cassette is being ejected.

5 EXT CPU (external CPU) indicator (p.7-4)

This indicator lights when the REMOTE/LOCAL selector is set to REMOTE and this unit is handshaken by an external CPU.

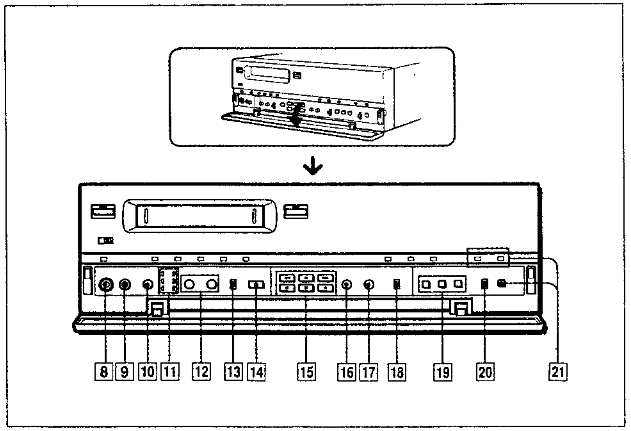
6 Tape indicators

📼	Lights when a cassette tape is in the cassette compartment.
Hi8	Lights when the power is turned on, and goes off when a tape that is not recorded in the Hi8 video system is inserted.
PCM	Lights during playback of a tape with the PCM sound recorded or while recording the PCM sound.
SP	Lights when the power is turned on, and goes off when a tape recorded in the LP mode, or a non-recorded tape is being played back.
TC	Lights during playback of a tape with the time code recorded or while recording the time code.

7 Operating mode indicators

AUDIO DUB	Flashes when the tape is in the audio dubbing standby mode. Lights during audio dubbing.
REC	Lights during recording.
TAPE RUN	Lights in green when a tape is running. Lights in red when the tape is in the playback or recording pause mode.

Inside the Front Panel



8 MIC jack (minijack, monaural)

Connect a microphone.

9 PHONES jack (stereo minijack)

Connect headphones.

10 LEVEL control

Adjust the headphone level.

11 REC LEVEL indicators (p.3-14)

During recording, these indicators indicate the left and right channel audio recording levels of the sound selected by the AUDIO OUTPUT selector. When the AUDIO OUTPUT selector is set to AFM, both indicators display the same level.

During playback, the indicators display the audio playback level of the sound selected by the AUDIO OUTPUT selector.

12 REC LEVEL controls (p.3-14)

Adjust the L (left) channel and R (right) channel audio recording levels.

13 AUDIO OUTPUT selector (p.3-4)

Select the sound to be output through the PHONES jack and LINE OUT jacks.

PCM	Sound on the PCM track only
MIX	Sound on the PCM track mixed with that on the video/AFM track
AFM	Sound on the video/AFM track only (monaural)

14 AUDIO DUBBING button (p.3-16)

Use this button when you perform audio dubbing. During audio dubbing, the sound recorded on the PCM track is replaced with a new sound.

15 Tape transport buttons

◀◀REW	Rewind button
▶PLAY	Playback button
▶▶FF	Fast-forward button
■STOP	Stop button
❚❚PAUSE	Recording/playback pause button
●REC	Recording button To start recording, while pressing this button press the ▶ PLAY button.

16 STILL ADJUST (still picture adjustment) control (p.3-8)

If the still picture appears to shake, turn this control to best stabilize the picture.

17 SLOW ADJUST (slow-motion picture adjustment) control (p.3-8)

If streaks or snow appear during slow-motion playback, turn this control to remove the noise from the screen.

18 VIDEO INPUT selector (p.3-14)

Select the video signal you want to record.

S VIDEO	To record the S video signal input through the S VIDEO IN connector
VIDEO	To record the composite video signal input through the BNC-type LINE IN VIDEO connector
AUX	Reserve for future use

19 PRESET MENU buttons (p.4-2)

Use these buttons for on-screen data presetting.

MENU	Select the 1 – 14 menu screens.
DATA	Select the desired data on the screen.
SET	Press this button to store the selected data in the memory.

20 DATA SCREEN selector (p.4-2)

Select the display on the screen.

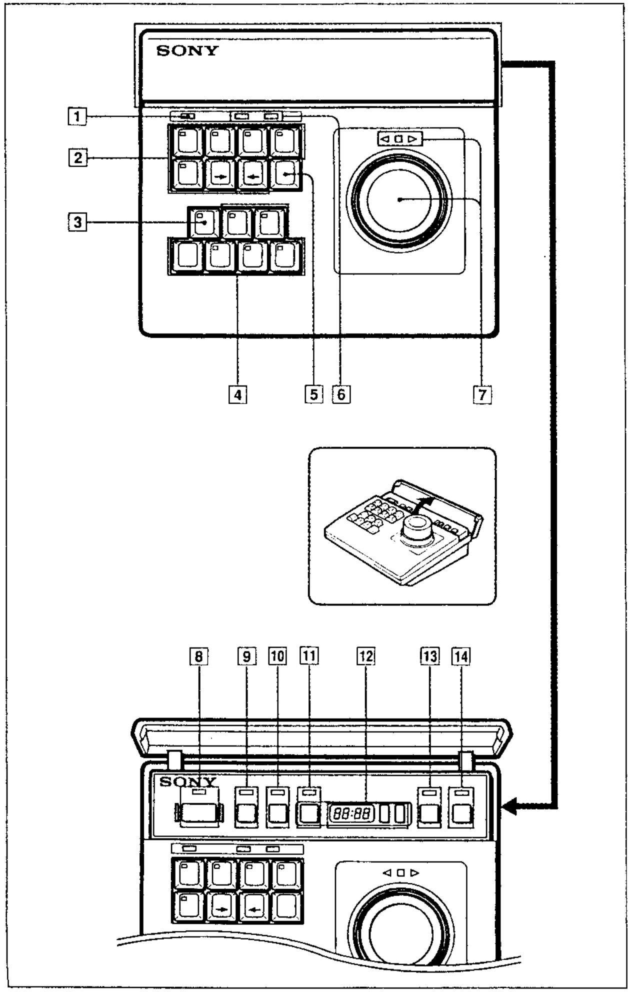
TC	To display the time code
OFF	No display
MENU	To display the preset menu on the screen

21 FRAME MEMORY SELECT button and indicators (p.4-10)

Select the operation mode of the internal digital frame memory. Each time you press this button, DNR (Digital Noise Reducer), BUFFER or off mode is selected cyclically. The selected mode is indicated by the FRAME MEMORY indicators.

DNR	Lights to show that the playback signal passes through the frame memory.
BUFFER	Lights to show that the VTR input signal passes through the frame memory.
OFF	When no indicators light, the frame memory is not operating.

Remote Controller



1 EXT CONTROL (external control) indicator

This indicator lights when the REMOTE/ LOCAL selector on the VTR is set to REMOTE. It indicates that the remote controller is not operating.

2 Digital picture buttons and indicators (p.3-9)

Use these buttons to display the picture with special effects after passing through the digital frame memory.
To watch the digital picture from the playback signal, set the FRAME MEMORY SELECT button to DNR. To watch the digital picture from the input signal, set it to BUFFER.

FREEZE: Press to freeze one frame of the picture.

MULTI: Press to display a multi-monitor screen divided into 9 section.

ZOOM ×2: Press to zoom up a portion of the picture on the screen.

DIGITAL SLOW: Press to display the noiseless forward slow-motion picture.

FRAME/FIELD: Select the frame or field freeze picture. The indicator lights to show the FRAME mode.

←, →: Select the picture in the freeze, multi-monitor screen or zoom mode.

3 EE (Electric-to-Electric) button and indicator (p.5-5)

Press this button to display on the monitor screen input video and audio signals which have passed through the amplifier of the VTR (EE mode). The indicator lights up.

Note

The VTR will not enter the EE mode during tape formatting, even if the EE button's indicator is lit.

4 Tape transport buttons and indicator

PAUSE	Recording/playback pause button
REC	Recording button To start recording, while pressing this button press the PLAY button.
STOP	Stop button
REW	Rewind button
PLAY	Playback button
FF	Fast-forward button

The high-speed picture cannot be obtained using the REW or FF button on the remote controller.

5 FRAME MEMORY SELECT button (p.4-10)

Select the operation mode of the internal digital frame memory. Each time you press this button, DNR (Digital Noise Reducer), BUFFER or off mode is selected cyclically. The selected mode is indicated by the FRAME MEMORY indicators.

DNR	Lights to show that the playback signal passes through the frame memory.
BUFFER	Lights to show that the VTR input signal passes through the frame memory.
OFF	When no indicators light, the frame memory is not operating.

6 Frame memory select indicators

Indicates the setting of the FRAME MEMORY SELECT button.

7 JOG/SHUTTLE dial and indicators (p.3-6)

This dial has two positions: depressed (JOG) and released (SHUTTLE).
When using as a JOG dial, depress the dial and turn freely. The tape runs at the speed you are turning the dial. Release the dial to obtain a still picture.
When using as a SHUTTLE dial, press to release the dial, if depressed. Turn the dial, and the tape runs depending on the position to which the dial is turned. When you return the dial to the center position, a still picture is obtained.
The ▷ indicator indicates the forward direction, ◁ the reverse direction and ▯ the still picture.

Inside the front panel

The buttons inside the front panel are used for formatting tapes and editing.

8 EDIT/END button and indicator
Press this button to start and stop the editing whose mode is selected with buttons 9 to 14. The indicator flashes during pre-rolling and lights during editing.

9 ASMBL (assemble) editing button and indicator (p.5-5)
Press this button to select the assemble editing mode. The indicator lights up.

10 FORMAT button and indicator (p.5-7)
Press this button to format a tape for insert editing. The indicator lights up.
The time code and PCM recording are made on the background colour selected on the menu screen.
Perform the formatting before the video/AFM insert editing.

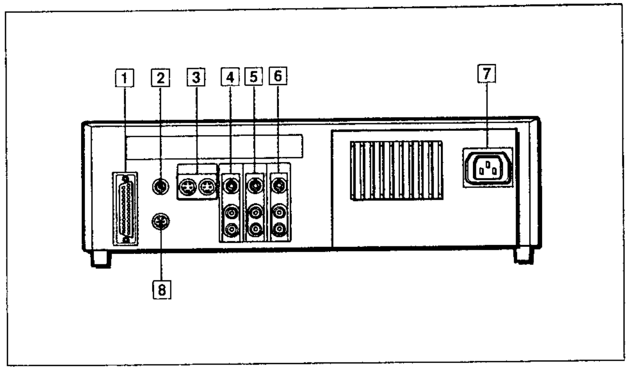
11 VIDEO/AFM insert button and indicator (p.5-9)
Press this button to select the video/AFM insert mode. The indicator lights up.

12 SECOND/FRAME counter and UP and DOWN buttons (p.5-9)
Specify the duration of the video/AFM insert editing by the second and frame using the UP and DOWN buttons.

13 PCM AUDIO insert button and indicator (p.5-12)
Press this button to select the PCM audio insert editing mode. The indicator lights up.

14 TIME CODE insert button and indicator (p.5-15)
Press this button to select the time code insert mode. The indicator lights up.

Rear



1 RS-232C connector (D-sub, 25-pin) (p.7-3)
Connect to the RS-232C connector of a computer, etc.
For the pin assignment, see page 7-3.

2 GPI (General Purpose Interface) connector
Outputs the status pulse indicating the IN point or OUT point during editing. The output timing can be adjusted in the unit of frames using the menu screen.

3 S VIDEO IN/OUT connectors (4-pin mini DIN) (p.2-2)

IN	Connect to the S VIDEO OUT connector of input source equipment.
OUT	Connect to the S VIDEO IN connector of a monitor, etc.

4 LINE IN jacks (p.2-2)
Input the video and audio signals to be recorded on this VTR.

VIDEO	BNC connector
AUDIO L/R	phono jacks, stereo

5 LINE OUT jacks (p.2-2)
Output the video and audio signals being recorded or being played back.

VIDEO	BNC connector
AUDIO L/R	phono jacks, stereo

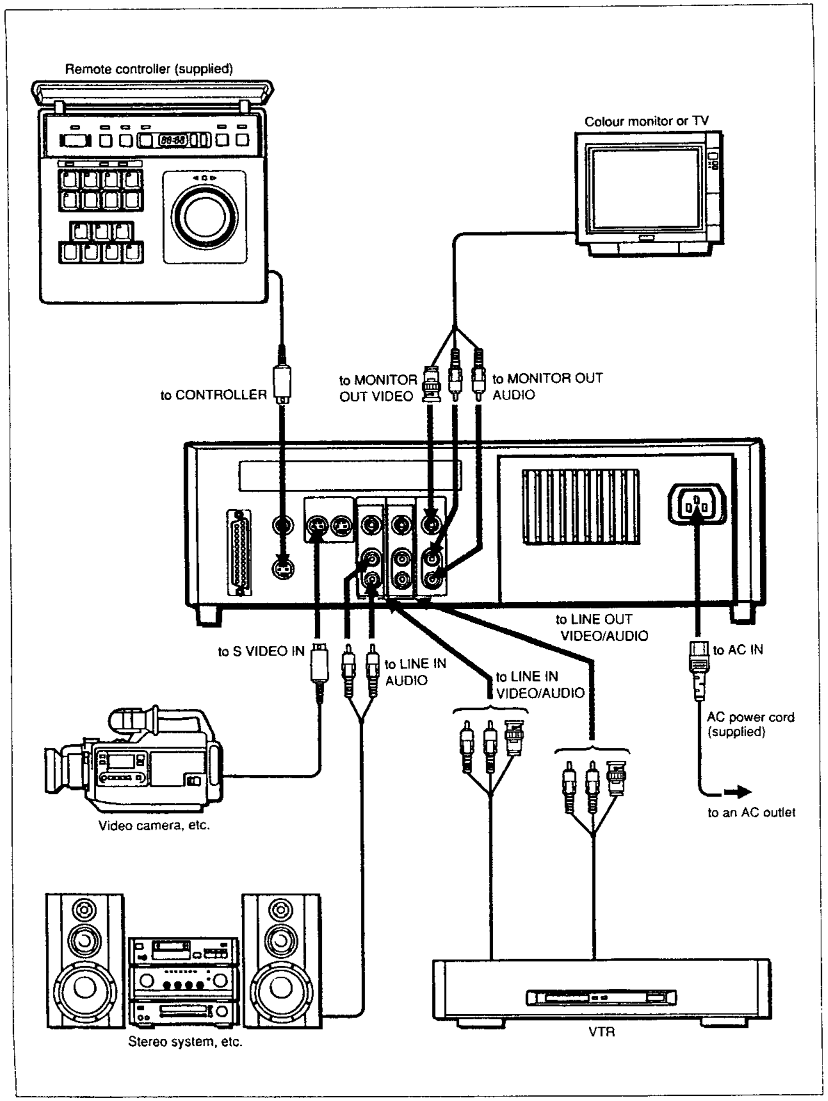
6 MONITOR OUT jacks (p.2-2)
Connect to a colour monitor. When the monitor is connected to this VIDEO connector, the time code and menu screens can be displayed on the monitor screen.

VIDEO	BNC connector
AUDIO L/R	phono jacks, stereo

7 AC IN connector (p.2-2)
Connect the supplied AC power cord.

8 CONTROLLER connector (p.2-2)
Connect the supplied remote controller.

Basic System Connection

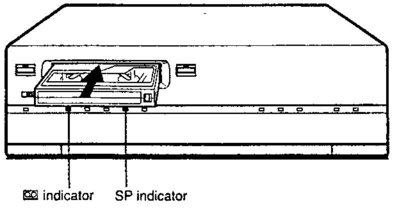

Remote controller (supplied)
Colour monitor or TV
to CONTROLLER
to MONITOR OUT VIDEO
to MONITOR OUT AUDIO
to LINE OUT VIDEO/AUDIO
to S VIDEO IN
to LINE IN AUDIO
to LINE IN VIDEO/AUDIO
to AC IN
AC power cord (supplied)
to an AC outlet
Video camera, etc.
Stereo system, etc.
VTR

When the external video equipment is provided with an S video input/output

Connect the S video input/output of the equipment to the S VIDEO OUT or S VIDEO IN connector of this unit.
The on-screen display data such as the time code and preset menu are not output from the S VIDEO OUT connector.

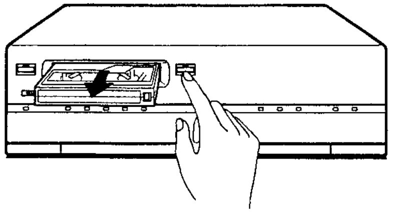
Inserting a Tape

Inserting a Tape



Insert a tape with the window up into the cassette compartment.
The VTR is turned on automatically, and the POWER indicator lights in green. The 📼 indicator and the SP indicator light up.

Ejecting a Tape

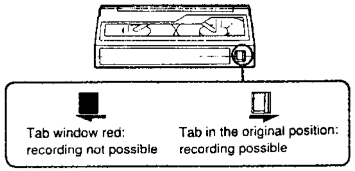


Press the ≜ EJECT button.
The tape is ejected automatically.
The indicator of the ≜ EJECT button flashes while the tape is being unloaded.

If you press the ≜ EJECT button when the VTR is in the standby mode (the POWER indicator lit in red), the VTR is automatically turned on, the tape is ejected and the VTR is reset to the standby mode.

To prevent an accidental erasure

When a recording is made on a cassette, any previous recording will be automatically erased. To protect a recording from accidental erasure, slide the tab on the rear of the cassette to the left so that the tab window is red.



Note

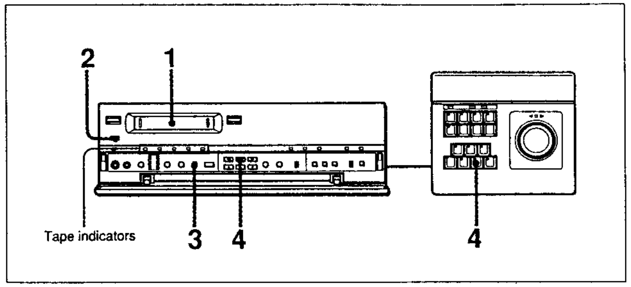
The cassette is ejected automatically if you press the REC button or EDIT/END button when the cassette tab window is red.

Notes on cassettes

- Do not insert anything other than a cassette into the cassette compartment.
- Do not insert anything in the small holes on the bottom of the cassette shell as the VTR distinguishes between ME and MP cassettes by the shape of a hole.
- Avoid using and storing the cassette in locations subject to dust, direct sunlight, or a strong magnetic field, or in locations near heat sources or susceptible to vibration.
- Store cassettes in their cases and keep them in an upright position to prevent the intrusion of dust and uneven winding.
- When a cassette will not be used for a long period of time, play it back once or twice a year.

Playing Back a Tape

Playback Procedure



1 **Insert a tape.**
The VTR is turned on automatically.

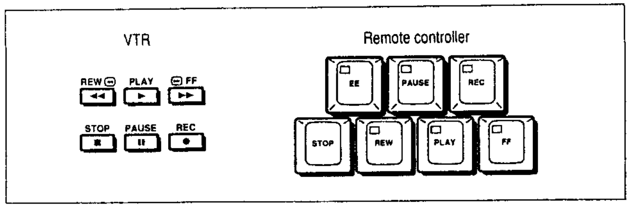
2 **Set the REMOTE/LOCAL selector to LOCAL.**
Now you can operate the VTR with the buttons on the VTR and the remote controller.

3 **Select the sound you want to hear with the AUDIO OUTPUT selector.**
PCM: Sound on the PCM track
MIX: Mixed sound on the PCM and video/AFM track
AFM: Sound on the video/AFM track

4 **Press the ▶ PLAY button.**
Playback will begin.
The TAPE RUN indicator lights in green and the indicator on the ▶ PLAY button on the remote controller lights up.
The tape indicators show the recorded tape conditions.

Note

If you play back or edit a tape recorded in the LP mode, the sound on the PCM track may not be heard correctly or the time code may not operate correctly.



To stop the tape	Press ■ STOP.
To stop the tape momentarily	Press ❚❚ PAUSE. To resume playback, press ❚❚ PAUSE again or press ▶ PLAY.
To rewind the tape	Stop the tape and press ◀◀ REW.
To fast-forward the tape	Stop the tape and press ▶▶ FF.
To monitor the high-speed reverse picture	Hold down ◀◀ REW on the VTR during playback. Release the button to resume playback.
To monitor the high-speed forward picture	Hold down ▶▶ FF on the VTR during playback. Release the button to resume playback.

Note

You cannot obtain the high-speed picture by pressing the REW or FF button on the remote controller.

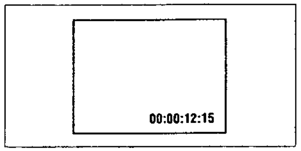
Automatic release of the playback pause mode

In order to protect the tape, the playback pause mode is released automatically after about 5 minutes and the unit is shifted to the stop mode. The duration of the pause mode can be changed between 1 and 5 minutes on preset menu 6. See page 4-6.

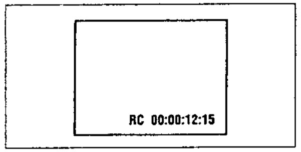
To watch the time code on the monitor screen

Set the DATA SCREEN selector to TC.
If the RC time code has been recorded, "RC" appears before or after the time code digits.

Institutional 8mm time code



RC time code



The display position of the time code can be changed on preset menu 5.
See page 4-6.

Note

An irregular time code may be displayed on the screen during playback due to noise or other causes. This is not a defect of the unit.

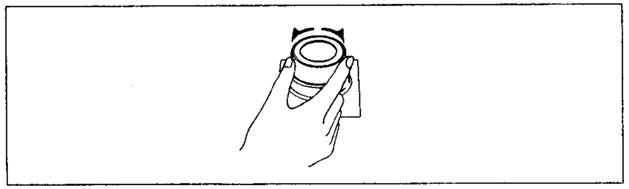
Using the JOG/SHUTTLE Dial

The JOG/SHUTTLE dial on the remote controller is useful to quickly locate the desired portion of the tape.
The JOG/SHUTTLE dial has two modes.

SHUTTLE mode

In the shuttle mode, the tape playback speed depends on the position to which you turn the dial. Use this mode to search for a desired approximate position on the tape.

Turn the dial within about 120 degrees and release.

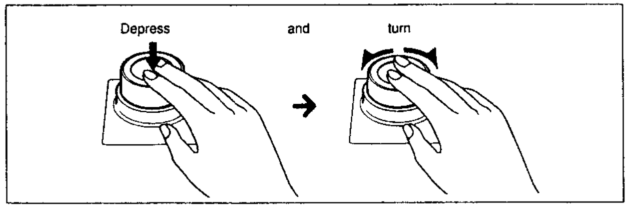


The playback speed increases as you turn the dial further clockwise or counterclockwise; from 1/30 to 15 times normal speed in the forward direction; from 1/30 to 13 times in the reverse direction. (See the table on the next page.)
When you turn the dial fully clockwise or counterclockwise beyond a click position, the speed is 15 times normal speed (forward) or 13 times normal speed (reverse) respectively.
When you return the dial to the center click position, a still picture is obtained.

JOG mode

In the jog mode, the tape playback speed depends on the speed at which you are turning the dial. Use this mode to search for a desired, precise position on the tape.

Depress the dial and turn it clockwise or counterclockwise.



The playback speed increases as you turn the dial faster; between 1/30 to 2 times normal speed in the forward direction; between 1/30 to 3 times normal speed in the reverse direction.
When you stop turning the dial, a still picture is obtained.

Playback speed variation in the JOG/SHUTTLE mode

SHUTTLE mode		JOG mode	
Forward	**Reverse**	**Forward**	**Reverse**
0 (still)	0 (still)	0 (still)	0 (still)
x1/30	–x1/30	x1/30	–x1/30
x1/10	–x1/10	x1/10	–x1/10
x1/5	–x1/5	x1/5	–x1/5
x1/3	–x1/3	x1/3	–x1/3
x1	–x1	x1	–x1
x2	–x3	x2	–x3
x9	–x7	—	—
x15	–x13	—	—

Automatic release of the slow-motion playback
Slow-motion playback in the reverse direction stops automatically after approximately 40 seconds to prevent the tape from being damaged.

Locating the Desired Scene on the Tape

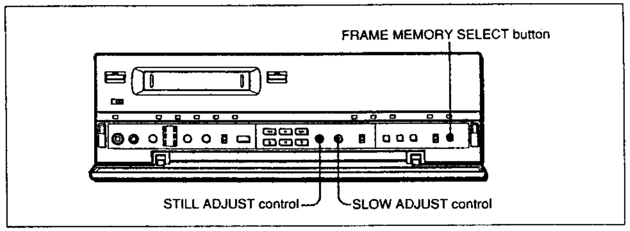
1 **Start playback.**

2 **Turn the JOG/SHUTTLE dial to the position where the desired playback speed is obtained. (SHUTTLE mode)**
If you turn it clockwise, the tape runs in the forward direction and the ▷ indicator lights. If you turn it counterclockwise, the tape runs in the reverse direction and the ◁ indicator lights.
When you return the dial to the center click position, a still picture is obtained and the ▯ indicator lights.

3 **When the tape approaches the scene you want to locate, depress the JOG/SHUTTLE dial to set it to the JOG mode.**
The tape pauses and a still picture is obtained.

4 **Turn the JOG/SHUTTLE dial clockwise or counterclockwise until the desired scene is displayed. (JOG mode)**
The tape runs at the speed you are turning the dial. When you release the dial, a still picture is obtained.

Adjusting the Playback Picture



If the still picture appears to shake

1. Press the FRAME MEMORY SELECT button to turn off the BUFFER and DNR indicators (OFF mode).
2. In the still picture mode, turn the STILL ADJUST control so that the picture is stabilized.

If streaks or snow appear during slow-motion playback

1. Press the FRAME MEMORY SELECT button to turn off the BUFFER and DNR indicators (OFF mode).
2. Turn the SLOW ADJUST control so that the noise is best removed.

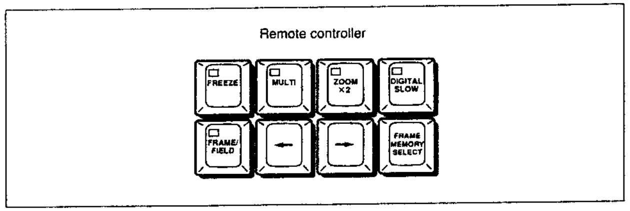
Note

Noise appears during x 2 (double speed) playback or high-speed playback. This is not a failure of the unit.

Watching Digital Pictures

When a picture passes through the digital frame memory, it can be displayed on the monitor screen with various effects. This is called a "digital picture".
The digital frame memory can be activated with either the playback picture or the picture input to the VTR.
When the FRAME MEMORY SELECT button is set to DNR (Digital Noise Reducer), the playback picture passes through the frame memory, and when it is set to BUFFER, the input picture passes through the fame memory.

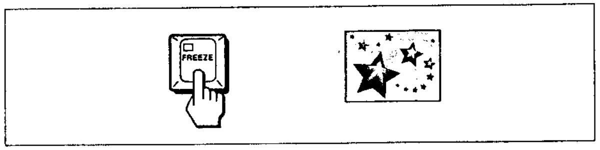
Buttons for the digital picture operation



Freezing a picture – FREEZE

To freeze the input picture

1. Press the FRAME MEMORY SELECT button to turn on the BUFFER indicator.
2. Press the FREEZE button to turn on its indicator.



One frame of the picture is stored in the memory and is displayed as a freeze picture.

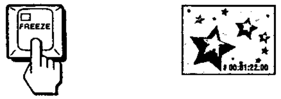
3. To release the freeze picture, press the FREEZE button again to turn off its indicator.
The picture being input appears on the screen.

To freeze the playback picture

Note

The time code must be recorded on the tape.
If you use a tape without a time code, you can obtain a freeze picture only in normal speed playback.

1. Press the FRAME MEMORY SELECT button to turn on the DNR indicator.
2. Set the VTR to normal speed playback (including the ×1 speed using the JOG/SHUTTLE dial) or playback pause mode.
3. Press the FREEZE button to turn on its indicator.



One frame of the picture is stored in the memory and displayed as a freeze picture. The VTR is set to the playback pause mode.
A # mark before the time code number shows that the picture of that time code is stored.

If you press the FREEZE button in the playback pause mode

The tape is rewound a little, advances and freezes at the time code when the FREEZE button is pressed. The VTR is set to the playback pause mode.

To advance or reverse the freeze picture by one frame

When the picture is frozen, press the → button. If the time code is recorded on the tape, the tape is rewound a little, advances and freezes at the next frame.
To reverse one frame, press the ← button.

To freeze the picture at the desired scene

When the picture is frozen, press the PLAY button to resume playback. The freeze picture remains on the monitor screen.
Locate the time code of the desired scene using the JOG/SHUTTLE dial and press the → or ← button to freeze the picture.

To resume the normal playback

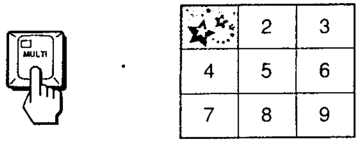
Press the FREEZE button to turn off the indicator and press the PLAY button.

To switch between the frame and field freeze pictures

When the picture is frozen, press the FRAME/FIELD button. Each time the button is pressed, the frame or field mode is changed alternately. The indicator on the button lights in the frame mode, and goes off in the field mode.

Dividing the screen into 9 parts – MULTI

1. Press the FRAME MEMORY SELECT button to select DNR or BUFFER as necessary.
2. Press the MULTI button to turn on its indicator.



The screen is divided into 9 parts and the picture appears in the top left corner.

3. Press the → button.
   The picture freezes in the top left part of the screen and the active picture appears in the next part of the screen.
4. Each time the → button is pressed, the active picture moves from one part of the screen to the next part in the order as illustrated above and each picture freezes except the active picture.

To change the position of the active picture

Press the ← or → button.
Pressing the ← button moves the active picture position in the reverse order.

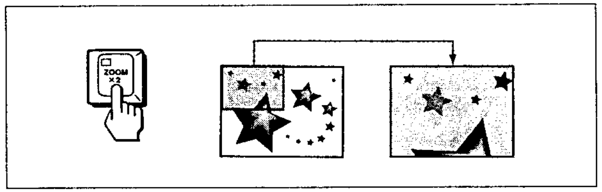
To resume the normal picture mode

Press the MULTI button to turn off the indicator.

Zooming up part of the picture – ZOOM × 2

1 Press the FRAME MEMORY SELECT button to select DNR or BUFFER as necessary.

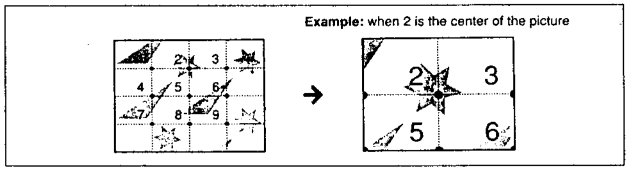
2 Press the ZOOM × 2 button to turn on its indicator.



Part of the picture on the screen is shown at twice its normal size.

To change the part of the picture zoomed up

Press the → button. Each time the → button is pressed, the zooming position changes in the order as illustrated below. The black dots are the centers of the zoomed pictures.
If you press the ← button, the zooming position changes in the reverse order.


Example: when 2 is the center of the picture

To resume the normal picture mode

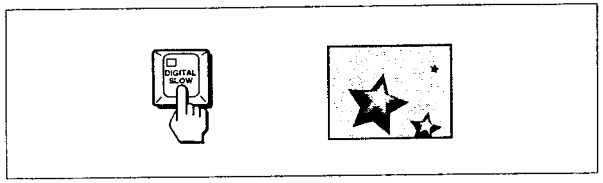
Press the ZOOM × 2 button to turn off the indicator.

Watching a noiseless forward slow-motion picture – DIGITAL SLOW

1 Press the FRAME MEMORY SELECT button to select DNR.

2 Set the VTR to forward slow-motion playback using the JOG/SHUTTLE dial.

3 Press the DIGITAL SLOW button to turn on its indicator.



As the tape advances, the picture is stored in the frame memory and displayed as a noiseless picture on the screen.

To cancel the DIGITAL SLOW mode

Press the DIGITAL SLOW button to turn off the indicator.

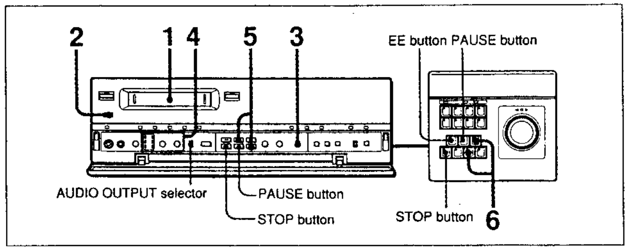
Note

The DIGITAL SLOW picture can be obtained only when the FRAME MEMORY SELECT button is set to DNR and the tape is in the forward slow-motion playback mode.

Recording

Recording Procedure

Recording is made in the SP mode. The time code is automatically recorded.



1 Insert a tape.
The VTR is turned on automatically.

Make sure that the tab window on the rear of the cassette is not red.

2 Set the REMOTE/LOCAL selector to LOCAL.
Now you can operate the VTR with the buttons on the VTR and the remote controller.

3 Set the VIDEO INPUT selector to select the video input connector to which the video source is connected.

S VIDEO: S VIDEO IN connector
VIDEO: BNC-type LINE IN VIDEO connector

4 Adjust the audio recording level with the REC LEVEL L/R controls.

1) Input an audio source to the LINE IN AUDIO jacks and play it.
2) When the tape is stopped, turn the REC LEVEL L and R controls so that the red OVER elements on the REC LEVEL indicators do not light up at the peak level.
3) Stop playing the audio source and reset it to the starting point.

5 Play the audio/video source.

6 While pressing the REC button on the VTR or remote controller, press the PLAY button.
Recording will begin.
The TAPE RUN indicator lights in green and the REC indicator lights on the VTR. The indicator on the REC button on the remote controller also lights up.

To stop the tape	Press STOP.
To stop recording momentarily	Press PAUSE. The TAPE RUN indicator lights in red. To resume recording, press PAUSE again.

Monitoring the sound

On this VTR, the sound is recorded on the video/AFM track (monaural) and the PCM track (stereo) automatically.
Select the sound you want to hear during recording with the AUDIO OUTPUT selector.

PCM: Sound on the PCM track
MIX: Mixed sound on the PCM and video/AFM track
AFM: Sound on the video/AFM track

When a tape reaches its end during recording

The recording stops automatically.

Automatic release of the recording pause mode

In order to protect the tape, the recording pause mode is released automatically after about 5 minutes and the unit is shifted to the stop mode. The duration of the pause mode can be set between 1 and 5 minutes on the screen menu 6. See page 4-4.

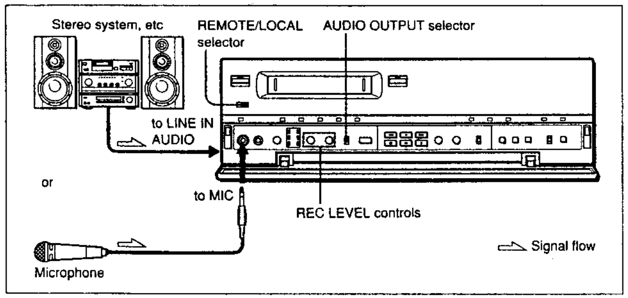
Audio Dubbing

Audio dubbing is used when you add narration, music or a desired audio programme to the PCM track of a tape with the video/AFM sound recorded. A time code will be automatically recorded during audio dubbing.

Note on tape to be used for audio dubbing

Audio dubbing cannot be performed correctly on a brand new tape or on a portion of the tape where no picture and sound have been recorded.

Preparation

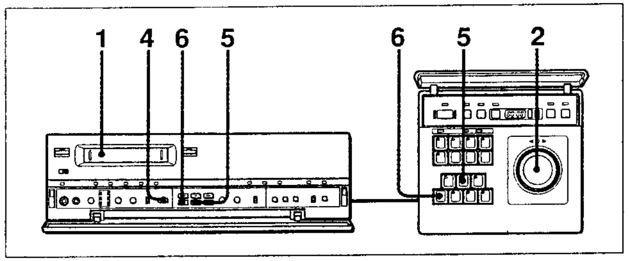


1 Connect audio source equipment to the LINE IN AUDIO jacks or a microphone to the MIC jack.
If both are connected, the sounds are mixed and recorded.

2 Set the switches and control on the VTR as follows:

REMOTE/LOCAL	LOCAL
AUDIO OUTPUT	PCM
REC LEVEL	Adjust the recording level. (See page 3-14.)

Audio Dubbing Procedure



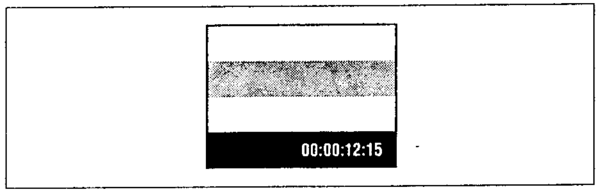
1 Insert a tape.

2 Locate the audio dubbing starting point on the tape using the JOG/SHUTTLE dial, and set the VTR to the playback pause mode.

3 Prepare the audio source.

4 Press the AUDIO DUBBING button.
The AUDIO DUB indicator blinks.

5 Press the PAUSE button.
The AUDIO DUB indicator lights up and audio dubbing starts. The sound from the connected audio source is recorded on the PCM track and the time code is also recorded.



During audio dubbing, the playback picture is displayed on the monitor screen and a black band appears at the bottom of the screen and a semi-transparent black band in the center.

6 To stop audio dubbing, press the STOP button.

To stop audio dubbing momentarily

Press the PAUSE button during audio dubbing. To resume audio dubbing, press the PAUSE button again.

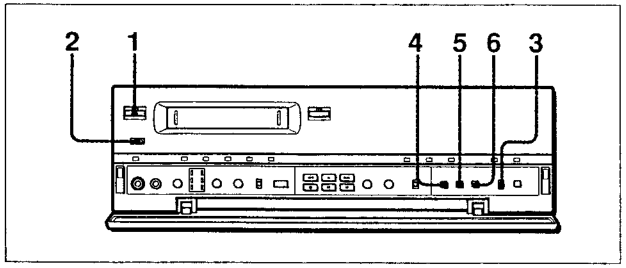
Note

Audio dubbing erases sound previously recorded on the PCM track.

On-screen Data Presetting

Presetting Procedure

You can preset the 13 items using the PRESET MENU buttons inside the front panel. The preset menu screen is displayed on the video monitor connected to the MONITOR OUT VIDEO connector.



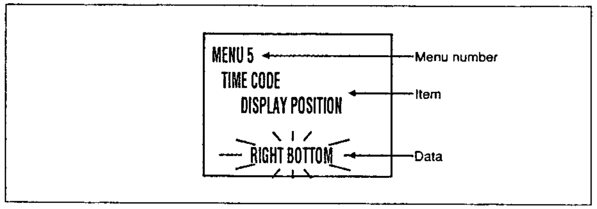
Example: To set the time code display (Menu 5) to the RIGHT TOP position

1 Press the POWER button.

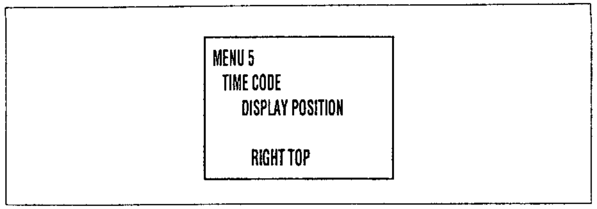
2 Set the REMOTE/LOCAL selector to LOCAL.

3 Set the DATA SCREEN selector to MENU.

4 Press the MENU button to select the desired menu screen.
By pressing the MENU button repeatedly, 1 to 14 menu screens appear cyclically.
The previously set data blinks on the screen.


MENU 5
TIME CODE
DISPLAY POSITION
RIGHT BOTTOM

5 Press the DATA button to select the desired data.


MENU 5
TIME CODE
DISPLAY POSITION
RIGHT TOP

6 Press the SET button to store your selection in the memory.
The data stops blinking.

7 To set other menus, repeat steps 2 to 4.

8 To make the menu screen disappear, set the DATA SCREEN selector to OFF or TC.

Note

After selecting the data with the DATA button, be sure to press the SET button and confirm data blinking stops. This indicates that the data is stored in the memory.

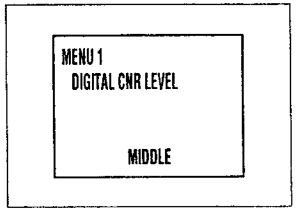
To retain the data in the memory
Since the memory is non-volatile, stored data is retained even if the power of the unit is turned off.

Menu List

Follow the Presetting Procedure on page 4-2 to set the data.

Menu 1 Digital CNR Level

Adjust the CNR (Chrominance Noise Reducer) level of the picture stored in the digital frame memory.



MENU 1
DIGITAL CNR LEVEL
MIDDLE

Data choices * default

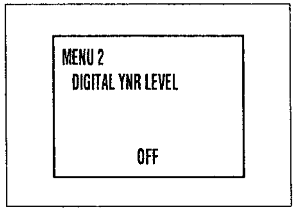
OFF	CNR off
LOW	Low level
* MIDDLE	Middle level
HIGH	High level

Note

When the CNR is set to HIGH, an after image (colour) may occur each time the picture from the memory switches. This is not abnormal.

Menu 2 Digital YNR Level

Adjust the YNR (Luminance Noise Reducer) level of the picture stored in the digital frame memory.



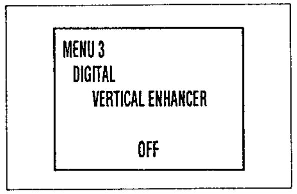
MENU 2
DIGITAL YNR LEVEL
OFF

Data choices * default

* OFF	YNR off
VERY LOW	Very low level
LOW	Low level
MIDDLE	Middle level
HIGH	High level

Menu 3 Digital Vertical Enhancer

The vertical enhancer makes the vertical contour of the picture stored in the digital frame memory clear. Adjust the vertical enhancer level.



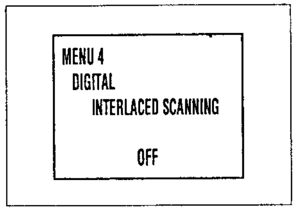
MENU 3
DIGITAL
VERTICAL ENHANCER
OFF

Data choices * default

* OFF	Digital vertical enhancer off
VERY LOW	Very low level
LOW	Low level
MIDDLE	Middle level
HIGH	High level

Menu 4 Digital Interlaced Scanning

When you watch the field freeze picture in the FREEZE, MULTI or ZOOM digital picture modes, set this item to ON so that the picture becomes an apparent frame freeze picture. Switch the digital interlaced scanning ON or OFF.



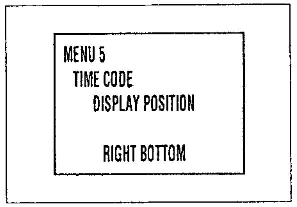
MENU 4
DIGITAL
INTERLACED SCANNING
OFF

Data choices * default

* OFF	to display a field freeze picture
ON	to display an apparent frame freeze picture

Menu 5 Time Code Display Position

Select the position in which you want to display the time code on the screen.



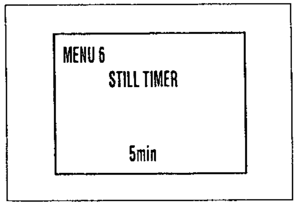
MENU 5
TIME CODE
DISPLAY POSITION
RIGHT BOTTOM

Data choices * default

* RIGHT BOTTOM
LEFT BOTTOM
LEFT TOP
RIGHT TOP

Menu 6 Still Timer

Select the duration of the recording/playback pause mode after which the unit automatically shifts to the stop mode.

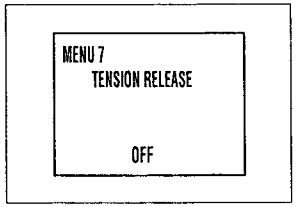

MENU 6
STILL TIMER
5min

Data choices * default

1 min	1 minute
2 min	2 minutes
3 min	3 minutes
4 min	4 minutes
* 5 min	5 minutes

Menu 7 Tension Release

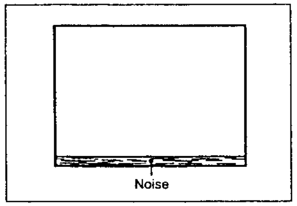
If you set this item to ON, the tape around the head drum automatically slackens when the unit enters the playback pause mode. This prevents tape damage due to a long pause.


MENU 7
TENSION RELEASE
OFF

Data choices * default

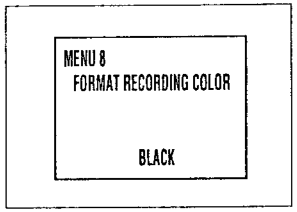
* OFF	normal pause mode
ON	to slacken the tape

When the FRAME MEMORY SELECT button is set to DNR, a noiseless freeze picture from the digital frame memory is displayed on the screen during the playback pause mode.
When the FRAME MEMORY SELECT button is set to BUFFER or OFF, noise appears at the bottom of the screen.



Menu 8 Format Recording Colour

Select the background colour on which a new tape is to be formatted. For format recording, see page 5-5.
When you select this menu screen, the background colour of the screen changes to the one currently set. If you change the data and press the SET button, the background colour changes to the new setting.

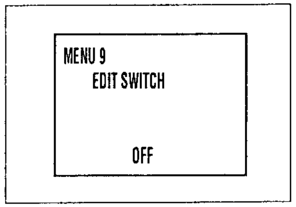

MENU 8
FORMAT RECORDING COLOR
BLACK

Data choices * default

* BLACK
GRAY
VIOLET
BLUE
GREEN
OCHER
MAGENTA

Menu 9 Edit Switch

When editing the playback signal on this unit onto another VTR, set this item to ON to output the proper signal for editing.

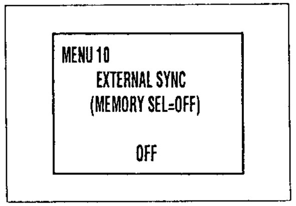

MENU 9
EDIT SWITCH
OFF

Data choices * default

* OFF	Normal position
ON	to edit onto another VTR

Menu 10 External Sync

Set this item to ON when you want to synchronize playback on the unit with the reference video signal input to either the S VIDEO IN or LINE IN VIDEO connector selected by the VIDEO INPUT selector (V sync lock mode).



MENU 10
EXTERNAL SYNC
(MEMORY SEL=OFF)

OFF

Data choices * default

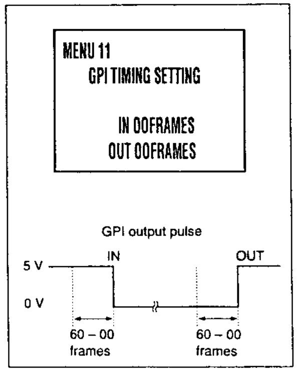
* OFF	Normal position
AUTO	to play back on an external sync

Note

When playing back using an external sync signal, set the FRAME MEMORY SELECT button to OFF.

Menu 11 GPI Timing Setting

Set the timing with which a status pulse is output from the GPI connector at the IN and OUT points during editing. 00 – 60 frames can be set.



MENU 11
GPI TIMING SETTING

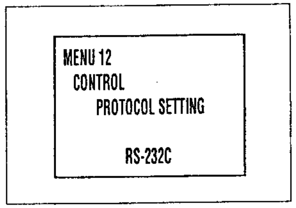
IN 00FRAMES
OUT 00FRAMES

Data choices

00 – 60 frames before the IN and OUT points respectively.
Default is 00 frames.

Menu 12 Control Protocol Setting

Select the protocol with which this unit is controlled.



MENU 12
CONTROL
PROTOCOL SETTING

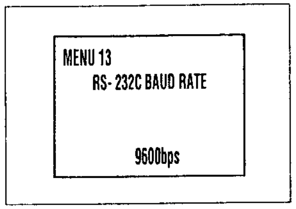
RS-232C

Data choices * default

* RS-232C	Sony Institutional RS-232C protocol
OPTION	Reserve for future use

Menu 13 RS-232C Baud Rate

Select the RS-232C communication speed.



MENU 13
RS-232C BAUD RATE

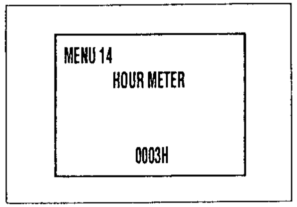
9600bps

Data choices * default

* 9600bps
4800bps
2400bps
1200bps

Menu 14 Hour Meter

When this menu screen is selected, the hour meter for the drum is displayed on the screen. It shows how many hours the video head is used. Use the hour meter as a guide for head cleaning or replacement.



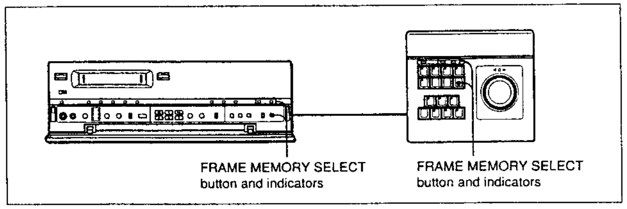
MENU 14
HOUR METER

0003H

H	Hours for which the video head is used

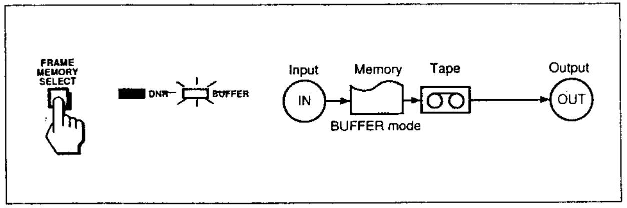
About the Digital Frame Memory

The digital frame memory has two modes. In the BUFFER mode, the picture input to this unit passes through the memory; and in the DNR (Digital Noise Reducer) mode, the playback picture passes through the memory. The FRAME MEMORY SELECT button selects the two modes. The selected mode is indicated by the BUFFER and DNR indicators.


FRAME MEMORY SELECT
button and indicators
FRAME MEMORY SELECT
button and indicators

BUFFER mode

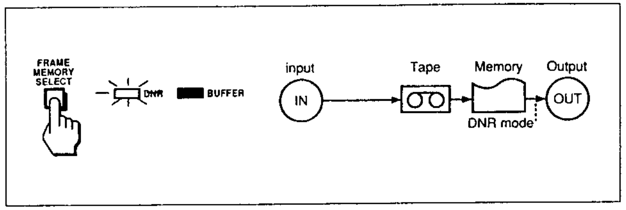
Press the FRAME MEMORY SELECT button to turn on the BUFFER indicator.


FRAME
MEMORY
SELECT
DNR
BUFFER
Input
Memory
Tape
Output
IN
OUT
BUFFER mode

In the BUFFER mode, the picture input from the LINE IN VIDEO or S VIDEO IN connector passes through the memory, and is recorded and/or output as a jitter–free picture.

DNR mode

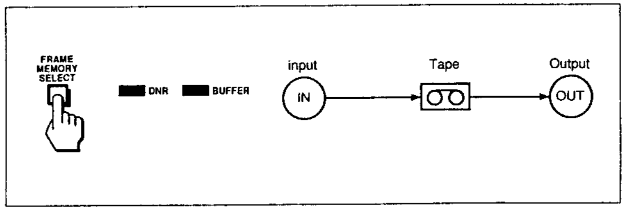
Press the FRAME MEMORY SELECT button to turn on the DNR indicator.


FRAME
MEMORY
SELECT
DNR
BUFFER
input
Tape
Memory
Output
IN
OUT
DNR mode

In the DNR mode, the playback picture passes through the memory and is displayed as a jitter–free picture.

To deactivate the digital frame memory (OFF mode)

Press the FRAME MEMORY SELECT button to turn off the BUFFER and DNR indicators.

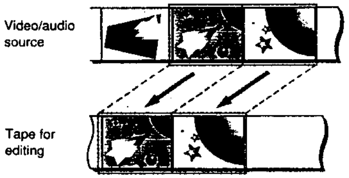

FRAME
MEMORY
SELECT
DNR
BUFFER
input
Tape
Output
IN
OUT

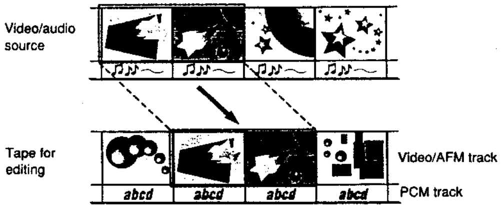
Noise reducers and digital frame memory
This unit incorporates the CNR (chrominance noise reducer) and YNR (luminance noise reducer). You can activate these noise reducers on the picture which passed through the digital frame memory. The levels of the noise reducers can be adjusted on screen menus 1 and 2. See page 4-4.

Digital pictures and digital frame memory
Digital pictures such as freeze, multi-monitor, zoom and digital slow pictures are obtained using the picture which passed through the digital frame memory. See page 3-9.

About Editing Methods

<table>
<tr><th>Editing method</th><th>When to use</th></tr>
<tr><td>Assemble Editing</td><td>To record desired scenes one by one.
The picture and sound on the video/AFM and PCM tracks are recorded simultaneously.
The time code is also recorded.

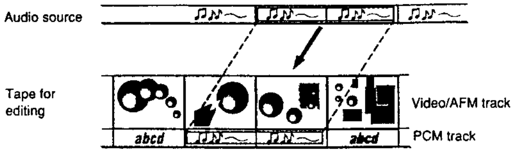

Video/audio source
Tape for editing
</td></tr>
<tr><td>Video/AFM Insert Editing</td><td>To replace the picture and sound recorded on the video/AFM track with other picture and sound while keeping the sound on the PCM track and the time code.


Video/audio source
Tape for editing
abcd
abcd
abcd
abcd
Video/AFM track
PCM track

Picture and Sound inserted

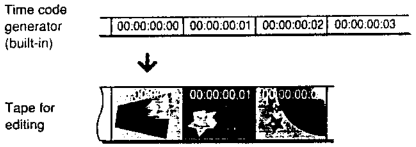
Note

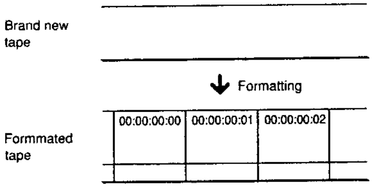
Video/AFM insert editing is possible only when using a tape recorded with this unit.
</td></tr>
<tr><td>PCM Audio Insert Editing</td><td>To replace the sound recorded on the PCM track with a new sound keeping the picture and sound on the video/AFM track. The time code is also recorded. If the time code has been recorded, the unit overwrites the same code.


Audio source
Tape for editing
abcd
abcd
Video/AFM track
PCM track

Sound inserted
</td></tr>
</table>

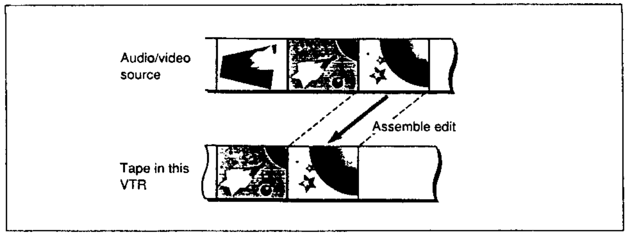
<table>
<tr><th>Editing-related Operation</th><th>When to use</th></tr>
<tr><td>Time Code Insert</td><td>To add a time code to a tape with the picture and sound prerecorded.


Time code generator (built-in)
00:00:00:00
00:00:00:01
00:00:00:02
00:00:00:03
Tape for editing
00:00:00:01
</td></tr>
<tr><td>Tape Formatting</td><td>To record a time code and sound (on the video/AFM and PCM tracks) with a background colour signal on a brand new tape.
Format a tape using this method before video/AFM insert editing.


Brand new tape
Formatting
Formmated tape
00:00:00:00
00:00:00:01
00:00:00:02
</td></tr>
</table>

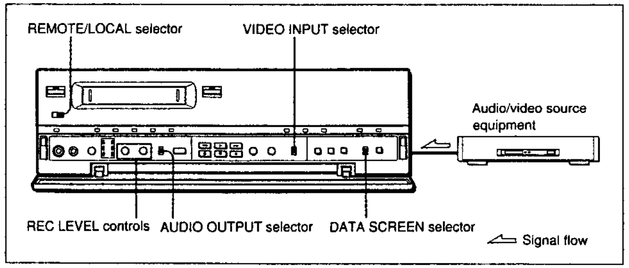
Assemble Editing

Assemble editing is used when you edit desired scenes one by one.


Audio/video source
Assemble edit
Tape in this VTR

Time code writing will start from 00:00:00:00 (0 hour 0 minute 0 second 0 frame) if no time code has been recorded where the assemble editing starts. If a time code has been recorded at that point on the tape, time code writing will continue from the next set of numbers.

Preparation

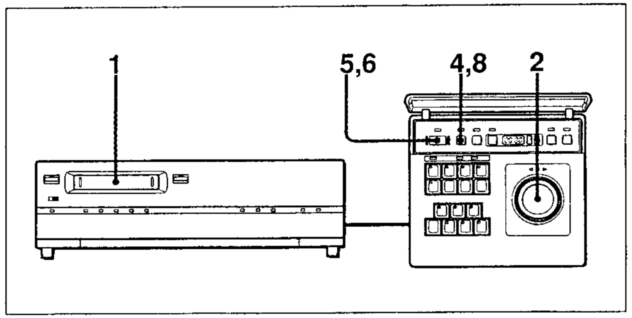

REMOTE/LOCAL selector
VIDEO INPUT selector
Audio/video source equipment
REC LEVEL controls
AUDIO OUTPUT selector
DATA SCREEN selector
Signal flow

1 Connect the audio/video source equipment to the AUDIO/VIDEO input connectors.

2 Set the switches and controls on the VTR as follows:

REMOTE/LOCAL	LOCAL
AUDIO OUTPUT	Select the sound to be monitored. (See page 3-4.)
REC LEVEL	Adjust the audio recording level. (See page 3-14.)
VIDEO INPUT	Select the video input to which the video source is connected. (See page 3-14.)

Assemble Editing Procedure



1 Insert a tape.

2 Locate the editing starting point (IN point) on the tape using the JOG/SHUTTLE dial, and set the VTR to the playback pause mode.

3 Prepare the audio/video source.

4 Press the ASMBL button.
The indicator on the button lights.

5 Press the EDIT/END button.
Pre-roll begins and the EDIT/END button indicator blinks.
After pre-rolling, recording will start from the IN point. The indicator will light up when the tape passes through the IN point.

6 To stop editing, press the EDIT/END button (OUT point).
The EDIT/END button indicator goes off. The VTR will continue recording for several frames, precisely locate the OUT point and be set to the playback pause mode.

7 Repeat steps 2 to 6 to edit more scenes.

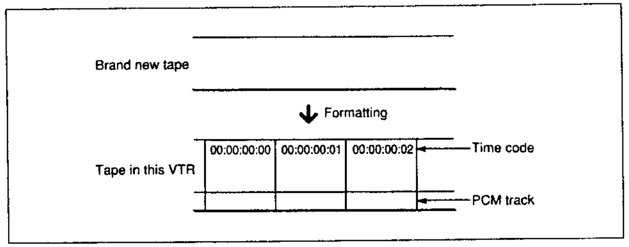
8 After editing, press the ASMBL button again.
The indicator on the button goes off.

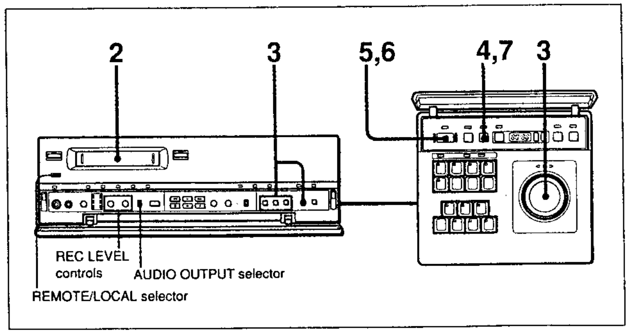
To switch the input picture and the recorded picture

Press the EE button on the remote controller to turn on the indicator on the button. The picture being input to the unit is displayed on the monitor screen.
Press the EE button again to turn off the indicator. The picture recorded on the tape is displayed.

Formatting a Tape

For video/AFM insert editing, a time code and a PCM signal should have been recorded on the tape.
Format a tape before video/AFM insert editing, and the time code is recorded on the tape with a background colour screen, and a PCM track is recorded.
Time code writing will start from 00:00:00:00 (0 hour 0 minute 0 second 0 frame) if no time code has been recorded where the format recording starts. If a time code has been recorded at that point on the tape, time code writing will continue from the next set of numbers.





Preparation

Set the switches on the VTR as follows:

REMOTE/LOCAL	LOCAL
AUDIO OUTPUT	PCM
REC LEVEL	Adjust the audio recording level if you record an audio signal. (See page 3-14.)

Tape Formatting Procedure

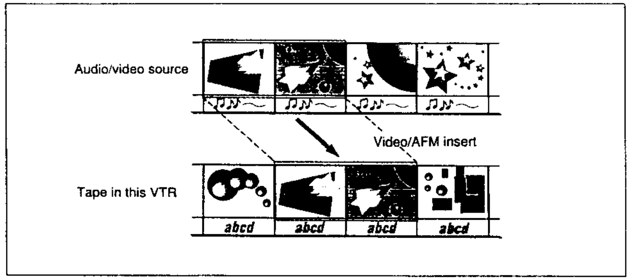
1. **Set the DATA SCREEN selector to MENU and select the background colour on screen menu 8, if necessary.**
   (See page 4-7.)
   After setting the background colour, set the DATA SCREEN selector to TC.
2. **Insert a tape.**
   Make sure that the tab window on the rear of the cassette is not red.
3. **Locate the formatting starting point (IN point) on the tape using the JOG/SHUTTLE dial, and set the VTR to the playback pause mode.**
4. **Press the FORMAT button.**
   The indicator on the button lights.
5. **Press the EDIT/END button.**
   Pre-roll begins and the EDIT/END button indicator blinks.
   After pre-rolling, formatting will start from the IN point. The indicator will light up when the tape passes through the IN point.
6. **To stop recording, press the EDIT/END button (OUT point).**
   The EDIT/END button indicator goes off. The VTR will precisely locate the OUT point and will be set to the playback pause mode.
7. **After formatting, press the FORMAT button again.**
   The indicator on the button goes off.

Notes

- If you format a prerecorded tape, the previous recording will be erased.
- Tape formatting is not possible when the safety tab window on the casette is red.
- If you format a tape with the RC time code prerecorded, the institutional 8mm time code will be recorded continuously from the end of the RC time code recording.

Video/AFM Insert Editing

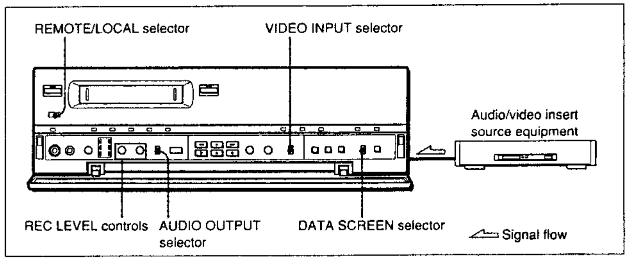
Video/AFM insert editing is used when you want to replace the picture and sound on the video/AFM track with new pictures and sounds. The sound recorded on the PCM track is kept.
Insertion is performed with single frame-precision, and the duration can be set between 1 frame and 15 seconds.


Audio/video source
Video/AFM insert
Tape in this VTR
abcd
abcd
abcd
abcd

Notes on the tape to be used for video/AFM insert editing

- **Video/AFM insert editing is possible only with a tape recorded on this VTR (not another EVO-9650P unit).**
  If you use a tape recorded on another VTR, the PCM audio may be distorted or the picture at the end of the insert may be disturbed.
- A time code and PCM track must have been recorded on the tape.
  Format a tape before video/AFM insert editing, if it is brand new.
- Use a tape on which the time code has been recorded more than 3 seconds before the editing starting point. Otherwise the video/AFM insert editing cannot be executed since pre-rolling cannot be performed.

Preparation

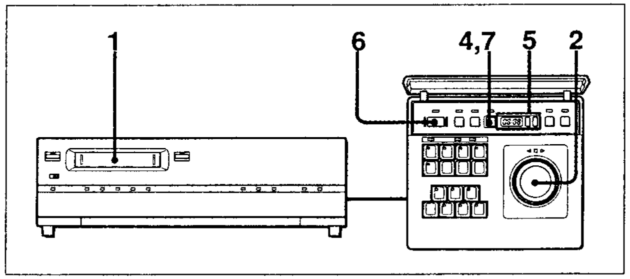

REMOTE/LOCAL selector
VIDEO INPUT selector
Audio/video insert source equipment
REC LEVEL controls
AUDIO OUTPUT selector
DATA SCREEN selector
Signal flow

1 Connect the insert source equipment to the AUDIO/VIDEO input connectors.

2 Set the switches and controls on the VTR as follows:

REMOTE/LOCAL	LOCAL
AUDIO OUTPUT	Select the sound to be monitored. (See page 3-4.)
REC LEVEL	Adjust the audio recording level. (See page 3-14.)
VIDEO INPUT	Select the audio video input to which the video source is connected. (See page 3-14.)
DATA SCREEN	TC

Video/AFM Insert Editing Procedure



1 **Insert a tape.**

2 **Locate the editing starting point (IN point) on the tape using the JOG/SHUTTLE dial, and set the VTR to the playback pause mode.**

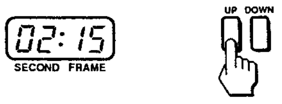
3 **Prepare the audio/video insert source.**

4 **Press the VIDEO/AFM button.**
The indicator on the button lights.

(continued on next page)

5 **Set the insert editing duration on the SECOND/FRAME counter (OUT point) using the UP/DOWN buttons. (Insert duration: 15 seconds maximum)**
Press the UP button to increase the duration, and the DOWN button to decrease it.

Example: 2 seconds 15 frames



6 **Press the EDIT/END button.**
Pre-roll begins and the EDIT/END button indicator blinks.
After pre-rolling, recording will start from the IN point. The indicator will light up when the tape passes through the IN point.

When the insertion for the specified period of time is completed, the VTR will precisely locate the OUT point and will be set to the playback pause mode.
The EDIT/END button indicator will go off when the tape passes through the OUT point.

7 **After editing, press the VIDEO/AFM button again.**
The indicator on the button goes off.

To stop video/AFM insert editing midway

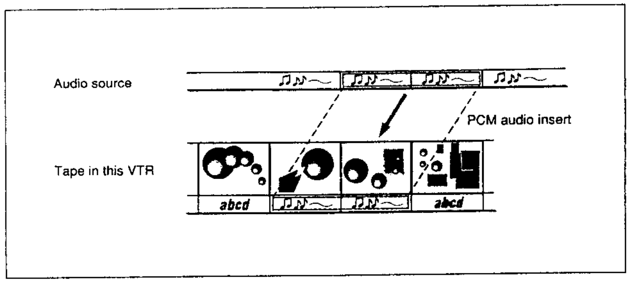
Press the EDIT/END button.

Notes

- The sound on the PCM track is muted during video/AFM insert editing.
- Video/AFM insert editing cannot be performed on a tape without the time code recorded or a tape with the RC time code recorded.

PCM Audio Insert Editing

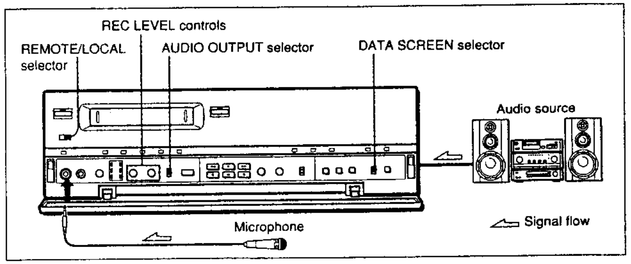
PCM audio insert editing is used when you want to replace only the sound on the PCM track with a new sound, or add PCM sound to a tape with video/AFM sound recorded.
Time code writing will start from 00:00:00:00 (0 hour 0 minute 0 second 0 frame) if no time code has been recorded where the PCM audio insert editing starts. If a time code has been recorded at that point on the tape, time code writing will continue from the next set of numbers.



Note on tape to be used for PCM audio insert editing

PCM audio insert editing cannot be performed correctly on a brand new tape.
Use a tape with a picture and sound recorded on the video/AFM track.

Preparation

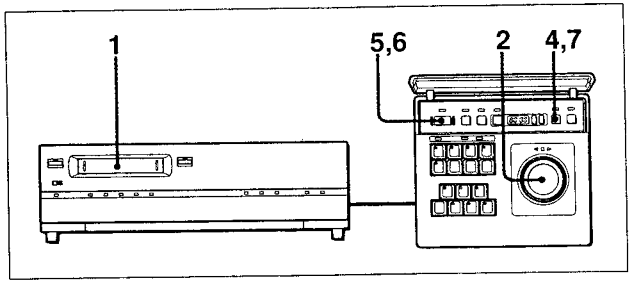


1 **Connect insert source equipment to the LINE IN AUDIO jacks or a microphone to the MIC jack.**
If both are connected, the sounds are mixed and recorded.

2 **Set the switches and controls on the VTR as follows:**

REMOTE/LOCAL	LOCAL
AUDIO OUTPUT	PCM
REC LEVEL	Adjust the recording level. (See page 3-14.)
DATA SCREEN	TC

PCM Audio Insert Editing Procedure



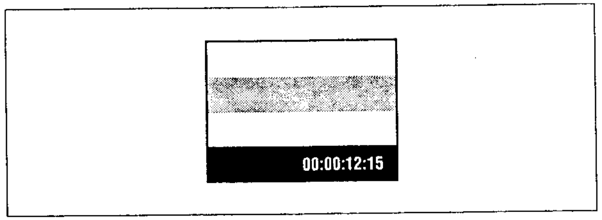
1 **Insert a tape.**

2 **Locate the editing starting point (IN point) on the tape using the JOG/SHUTTLE dial, and set the VTR to the playback pause mode.**

3 **Prepare the audio insert source.**

4 **Press the PCM AUDIO button.**
The indicator on the button lights.

5 **Press the EDIT/END button.**
Pre-roll begins and the EDIT/END button indicator blinks.
After pre-rolling, recording will start from the IN point. The indicator will light up when the tape passes through the IN point.



During PCM audio insert editing, the playback picture is displayed on the monitor screen and a black band (appears at) the bottom of the screen and a semi-transparent black band in the center.

6 **To stop editing, press the EDIT/END button (OUT point).**
The EDIT/END button indicator goes off. The VTR will precisely locate the OUT point and will be set to the playback pause mode.

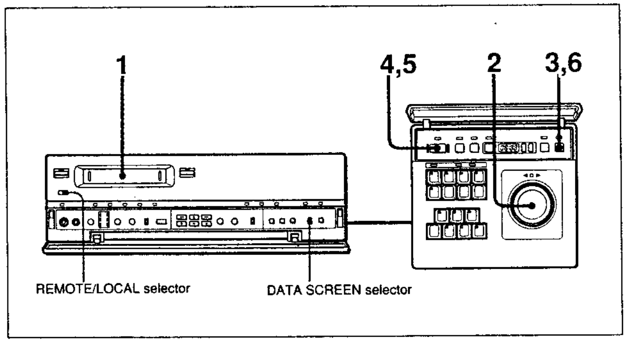
7 **After editing, press the PCM AUDIO button again.**
The indicator on the button goes off.

To stop PCM audio insert editing midway

Press the EDIT/END button.

Inserting a Time Code

Time code insert is used to add a time code to a tape on which the picture and sound are prerecorded. Time code writing will start from 00:00:00:00 (0 hour 0 minute 0 second 0 frame) if no time code has been recorded where the editing starts. If a time code has been recorded at that point on the tape, time code writing will continue from the next set of numbers.



Note on tape to be used for time code insert

Time code insert cannot be performed correctly on a brand new tape or on a portion of tape where no picture and sound have been recorded.

Preparation

Set the switches on the VTR as follows:

REMOTE/LOCAL	LOCAL
DATA SCREEN	TC

Time Code Insert Procedure

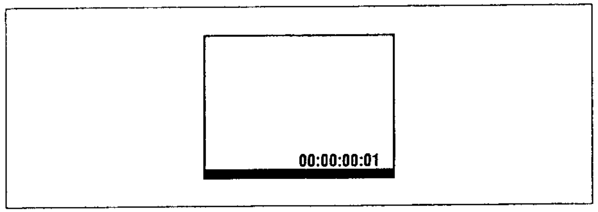
1 **Insert a tape.**
Make sure that the tab window on the rear of the cassette is not red.

2 **Locate the time code insert starting point (IN point) on the tape using the JOG/SHUTTLE dial, and set the VTR to the playback pause mode.**

- **If you want to record a time code following a prerecorded one without a break:** rewind the tape to a point on the tape before the end of the prerecorded time code.

3 **Press the TIME CODE button.**
The indicator on the button lights.

4 **Press the EDIT/END button.**
Pre-roll begins and the EDIT/END button indicator blinks.
After pre-rolling, time code writing will start from the IN point approximately.
The indicator will light up when the tape passes through the IN point.



During insertion, the playback picture is displayed on the monitor screen and a black band appears at the bottom of the screen.

5 **To stop time code insert, press the EDIT/END button (OUT point).**
The EDIT/END button indicator goes off. The VTR will stop nomentarily, will precisely locate the OUT point and will be set to the playback pause mode.

6 **After insertion, press the TIME CODE button again.**
The indicator of the button goes off.

Note

If the AUDIO OUTPUT selector is set to AFM, the sound is not heard during time code insert. If it is set to PCM, the distorted sound is heard. This does not affect the prerecorded picture and sound.

Frame Recording from a Video Camera

If you connect a video camera or image scanner to this unit, you can record the picture from the connected equipment by one frame or the desired number of frames that you specify on the SECOND/FRAME counter. Once the frame number is set, the recording start/stop procedure can be repeated so easily that even animation filming is possible.

Note on tape to be used for frame recording

A time code must have been recorded on the tape. Format the tape if it is brand new. (See page 5-6.)

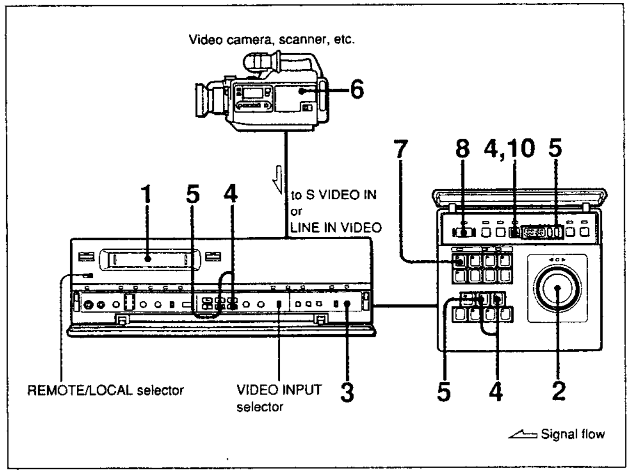
Preparation

1 Connect a video camera or image scanner to the S VIDEO IN or LINE IN VIDEO connector.

2 Set the switches on this VTR as follows:

REMOTE/LOCAL	LOCAL
VIDEO INPUT	Select the video input to which the video camera is connected.

Frame Recording Procedure



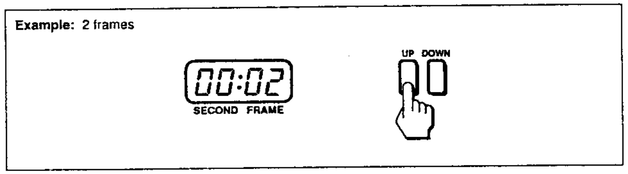
1 **Insert a tape.**

2 **Locate the recording starting point (IN point) on the tape using the JOG/SHUTTLE dial, and set the VTR to the playback pause mode.**

3 **Set the FRAME MEMORY SELECT button to BUFFER.**

4 **Press the VIDEO/AFM button.**
The indicator on the button lights.

5 **Set the recording duration on the SECOND/FRAME counter using the UP/DOWN buttons (OUT point).**



6 **Set the video camera to shooting mode.**

7 **Press the FREEZE button.**
The picture from the video camera is stored into the digital frame memory and is displayed as a freeze picture.

8 **Press the EDIT/END button.**
After pre-rolling, recording will be made for the preset frames. The VTR will then precisely locate the OUT point and will be set to the playback pause mode.

9 **To record the next scene, move the recording object and repeat steps 7 and 8.**

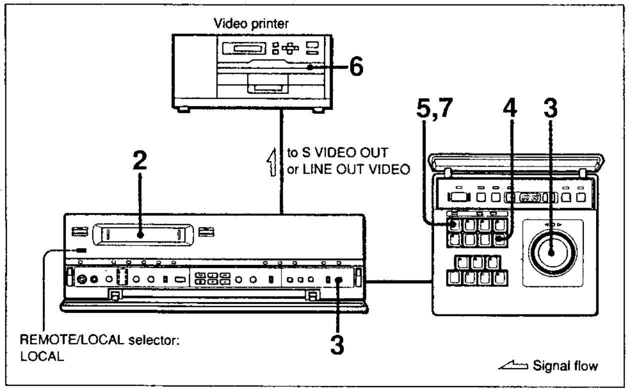
10 **When recording is completed, press the VIDEO/AFM button again.**
The indicator on the button goes off.

Printing a Freeze Picture Using a Video Printer

If you connect a video printer to this unit, you can store the playback picture on the digital frame memory and output the picture for printing.

Note on tape to be used for printing

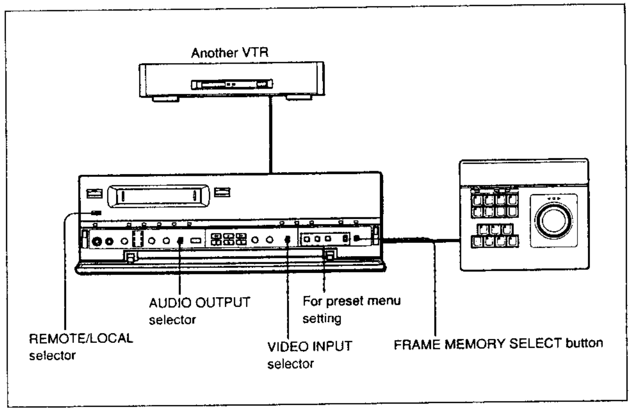
A time code (either institutional 8mm time code or RC time code) must be recorded on the tape.


Video printer
6
5,7
4
3
2
to S VIDEO OUT
or LINE OUT VIDEO
REMOTE/LOCAL selector:
LOCAL
3
Signal flow

1. **Connect the video printer to the S VIDEO OUT or LINE OUT VIDEO connector.**
2. **Insert a tape for printing.**
3. **Set the FRAME MEMORY SELECT button to DNR.**
4. **Locate the scene you want to print using the JOG/SHUTTLE dial, and set the VTR to the playback pause mode.**
5. **Press the FREEZE button.**
   The indicator of the button lights.
   The playback picture is stored on the digital frame memory and is displayed as a freeze picture.
6. **Set the printer to print mode.**
7. **When printing is completed, press the FREEZE button to turn off its indicator.**

Tape Dubbing

By connecting another VTR, you can dub an 8mm format tape to a Beta, VHS or 8mm format tape or vice versa.


Another VTR
AUDIO OUTPUT
selector
For preset menu
setting
REMOTE/LOCAL
selector
VIDEO INPUT
selector
FRAME MEMORY SELECT button

Dubbing to Another VTR

1. Connect another VTR to the LINE OUT AUDIO/VIDEO connectors.
2. Set the switches on this VTR as follows:

REMOTE/LOCAL	LOCAL
AUDIO OUTPUT	Select the sound to be dubbed onto another VTR.
EDIT switch (preset menu 9)	Set to ON on preset menu 9. (See page 4-7.)
FRAME MEMORY SELECT	If you want to activate the CNR and YNR to the playback picture, set to DNR.

3. Set this unit to playback mode, and the other VTR to recording mode.

Dubbing from Another VTR

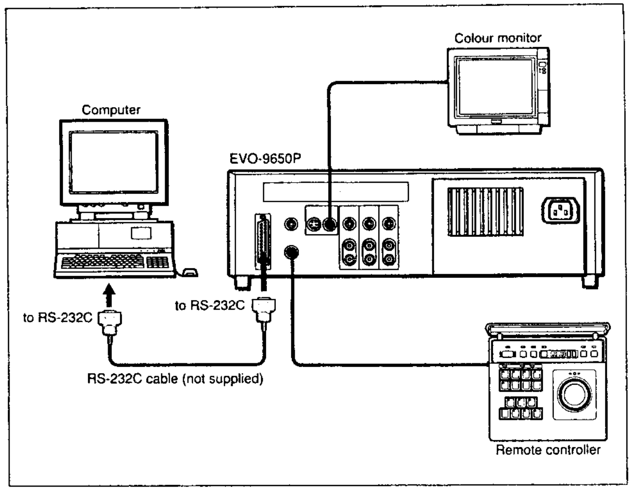
1. Connect another VTR to the LINE IN AUDIO/VIDEO connectors.
2. Set the switches on this VTR as follows:

REMOTE/LOCAL	LOCAL
AUDIO OUTPUT	Select the sound to be monitored.
VIDEO INPUT	Select the video input to which the other VTR is connected.
FRAME MEMORY SELECT	If you want to activate the CNR and YNR to the input picture, set to BUFFER.

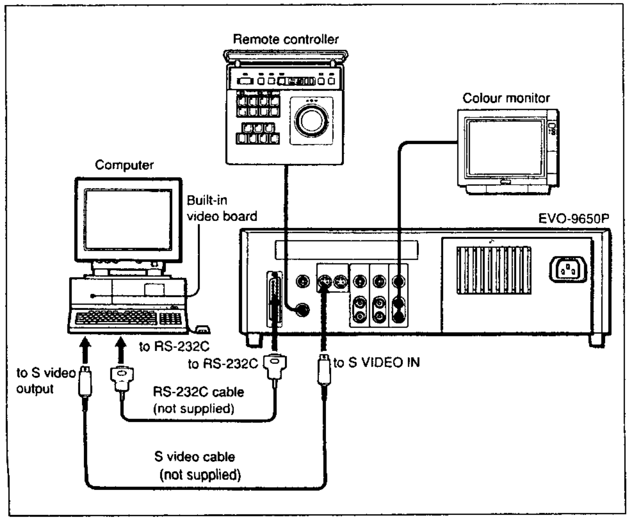
3. Set this unit to recording mode, and the other VTR to playback mode.

Connecting a Computer

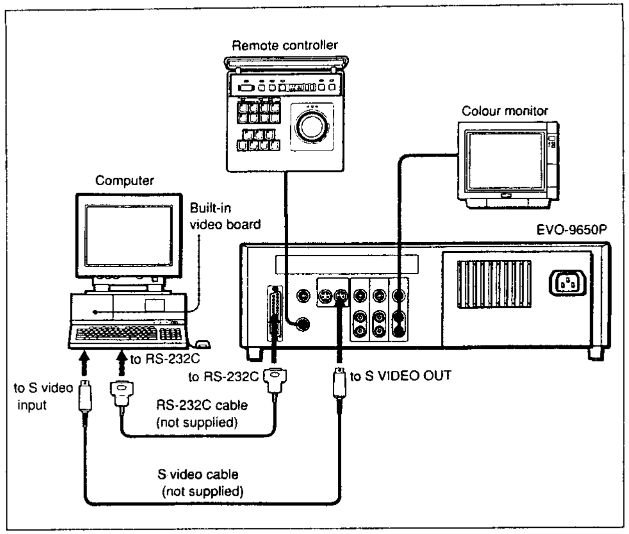
To control the VTR operations by computer


Colour monitor
Computer
EVO-9650P
to RS-232C
to RS-232C
RS-232C cable (not supplied)
Remote controller

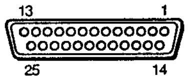
To record the picture from a computer on this VTR


Remote controller
Colour monitor
Computer
Built-in video board
EVO-9650P
to RS-232C
to RS-232C
to S VIDEO IN
to S video output
RS-232C cable (not supplied)
S video cable (not supplied)

To send the playback picture of this VTR to a computer


Remote controller
Colour monitor
Computer
Built-in video board
EVO-9650P
to RS-232C
to RS-232C
to S VIDEO OUT
to S video input
RS-232C cable (not supplied)
S video cable (not supplied)

Pin assignment of the RS-232C connector

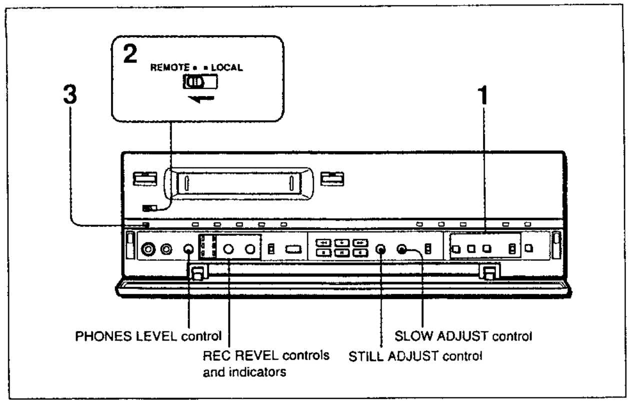


External CPU			**EVO-9650P**
FG	1	1	FG (Frame Ground)
TxD	2	2	TxD (Transmit Data)
RxD	3	3	RxD (Receive Data)
CTS	4	4	RTS (Request to Send)
RTS	5	5	CTS (Clear to Send)
DSR	6	6	DSR (Data Set Ready)
DTR	20	20	DTR (Data Terminal Ready)
GND	7	7	Ground

All signals conform to RS-232C specifications as follows:
Output level when ON: + 5 V or more
when OFF: − 5 V or less

Use a cross cable to connect a computer to the RS-232C connector of the EVO-9650P.

Preparation for Computer-controlled Operation



1 Set the baud rate on the preset menu 13. (See page 4-9.)

2 Set the REMOTE/LOCAL selector to REMOTE.

The buttons and switches on the VTR and remote controller become inoperative.

3 Perform the initial settings of the RS-232C on the computer.

The EXT CPU indicator on this unit lights.

Controls which cannot be operated by the computer

Adjust the following controls on the VTR.

REC LEVEL	Adjust the audio recording level. (See page 3-14.)
PHONES LEVEL	Adjust the headphone level.
STILL ADJUST	Adjust the still picture stability. (See page 3-8.)
SLOW ADJUST	Adjust the tracking in slow-motion playback mode. (See page 3-8.)

Note on the menu screen

The time code and menu screens are not displayed when the REMOTE/LOCAL selector is set to REMOTE. The on-screen data, however, can be set by the computer.

RS-232C Command List

For the details about each command, refer to the Interface Manual supplied.

An asterisk (*) means that the same function is obtained using the button or switch on the VTR or remote controller.

Control commands for the VTR's basic functions

PLAY*
STOP*
EJECT*
FF*
REW*
POWER OFF*
POWER ON*

Various playback control commands (including the JOG/SHUTTLE dial operation)

REVERSE PLAY (-x1)*
FORWARD FAST (x2)*
REVERSE FAST (-x3)*
FORWARD SLOW (x1/5)*
REVERSE SLOW (-x1/5)*
FORWARD STEP (x1/30)*
REVERSE STEP (-x1/30)*
FORWARD SCAN (x15)*
REVERSE SCAN (-x13)*
STILL*
FORWARD SHUTTLE (still to x15)*
REVERSE SHUTTLE (still to -x13)*
FORWARD STEP AND STILL*
REVERSE STEP AND STILL*
FORWARD FRAME STEP*
REVERSE FRAME STEP*

Recording control commands

REC*
REC PAUSE*
DUB*
DUB PAUSE*
REC/DUB REQUEST*

Edit operation commands

A. Edit data control commands:

Select the editing mode.

EDIT PRESET*

B. Time code control commands

• For IN point setting

IN-ENTRY
IN-ENTRY RESET
IN DATA +
IN DATA –
IN DATA PRESET

• For OUT point setting

OUT-ENTRY
OUT-ENTRY RESET
OUT DATA +
OUT DATA –
OUT DATA PRESET

• For user's bit setting

U-BIT PRESET

C. Edit tape transport control commands

AUTO EDIT*
EDIT OFF*
PREVIEW
REVIEW

D. Frame setting commands

N-FRAME REC

E. VTR-to-VTR edit control commands

Control two connected EVO-9650P units.

EDIT PB STANDBY
EDIT PLAY
EDIT REC
EDIT REC STANDBY
SEARCH AND PREROLL
EDIT PREVIEW

(Continued on next page)

Detection Commands

Used to confirm the VTR status.

ERROR SENSE
IN-DATA SENSE
OUT-DATA SENSE
TIME CODE SENSE
U-BIT SENSE
U-BIT PRESET SENSE
ADDR INQ
STATUS SENSE 1
STATUS SENSE 2
STATUS SENSE 3
STATUS INQ
VCR DATA SENSE
DIGITAL MODE SENSE

Picture search commands

Search for a picture using the time code, etc.

SEARCH
SEARCH WITH DATA
REPEAT
TIME CODE REPEAT
TIME CODE MARK SET
MEMORY
M-SEARCH (memory search)

Audio/video input/output control commands

A. For muting

AUDIO MUTE ON
AUDIO MUTE OFF
VIDEO MUTE ON
VIDEO MUTE OFF
A.V. MUTE ON
A.V. MUTE OFF

B. For selecting the EE mode

FULL EE ON*
FULL EE OFF*
AUDIO EE ON
AUDIO EE OFF
SELECT EE ON
SELECT EE OFF

C. For selecting input/output

AUDIO OUTPUT SELECT*
VIDEO INPUT SELECT*

Digital frame memory control commands

FRAME MEMORY SELECT*
DIGITAL MODE*
DIGITAL MODE OFF*
FREEZE FRAME OUT MODE*
FREEZE FIELD OUT MODE*
FRAME STILL*

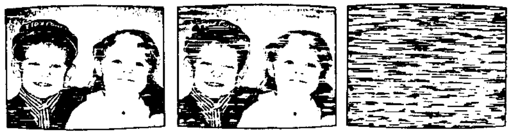
Others

ACK
NAK
COMPLETION
ERROR
NOT TARGET
CASSETTE OUT
MARK RETURN
ENTER
C.E. (clear error)
C.L. (clear)
C.L. AND INITIALIZE
EXP-7
EXP-8
INDEX ON*
INDEX OFF*
FRAME # MODE
POWER/EJECT ENABLE
POWER/EJECT DISABLE
CONTROLLER ENABLE
CONTROLLER DISABLE
VCR INQ
ROM VERSION INQ
DEVICE TYPE REQUEST
VCR DATA PRESET*

Maintenance

Video Head Cleaning

When playback pictures are noisy or hardly visible, the video heads may be contaminated.
To ensure a clear picture, clean the video heads periodically with the supplied cleaning cassette.



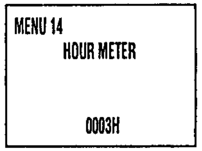
1. **Clean the video heads with the supplied cleaning cassette referring to the instructions provided with it.**
2. **After cleaning, check if the picture is clear by recording or playing back with an ordinary tape.**
3. **If the picture is still noisy, repeat cleaning.**

Caution

- Do not repeat cleaning more than 5 times.
- Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Video Head Replacement

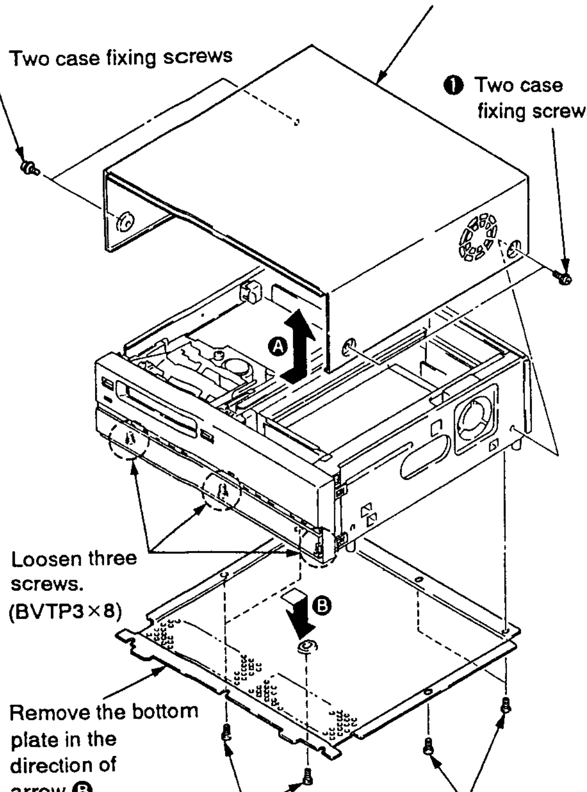
If picture quality is still deficient after cleaning, the video heads may need to be replaced. The life of the heads is approximately 500 – 1000 hours of use. With this unit, the accumulated operation time of the heads can be checked on screen menu 14.


MENU 14
HOUR METER
0003H

Regarding head replacement, consult your Sony service facility.

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF CABINET



② Remove the upper cabinet in the direction of arrow Ⓐ.

① Two case fixing screws

① Two case fixing screws

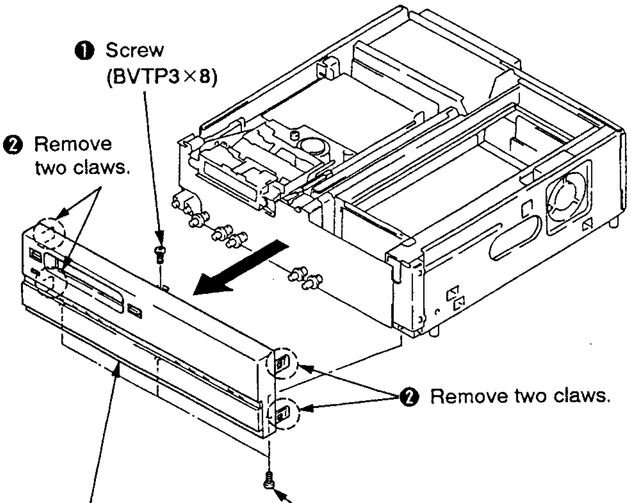
③ Loosen three screws. (BVTP3×8)

⑤ Remove the bottom plate in the direction of arrow Ⓑ.

④ Three screws (BVTP3×8)

④ Three screws (BVTP3×8)

2-2. REMOVAL OF FRONT PANEL



① Screw (BVTP3×8)

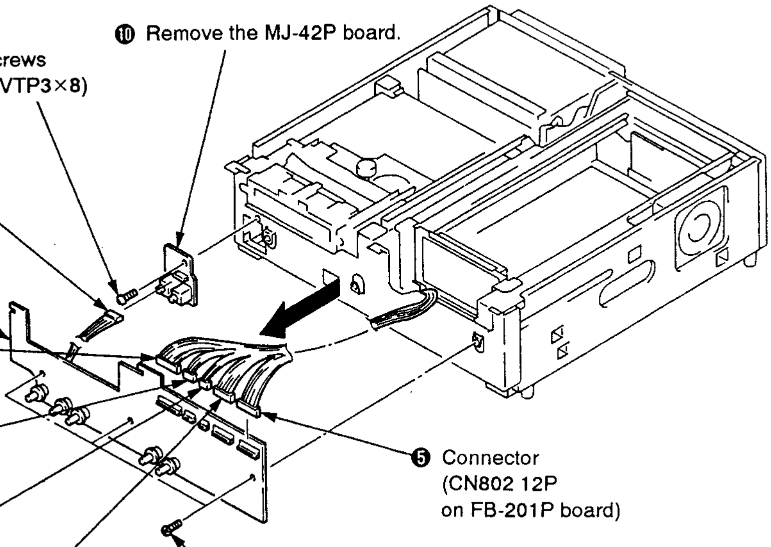
② Remove two claws.

② Remove two claws.

③ Remove the front panel in the direction of arrow.

① Three screws (BVTP3×8)

2-3. REMOVAL OF FB-201P AND MJ-42P BOARDS



⑩ Remove the MJ-42P board.

⑨ Screws (BVTP3×8)

⑥ Connector (CN201 8P on MJ-42P board)

⑧ Remove the FB-201P board in the direction of arrow.

① Connector (CN105 13P on FB-201P board)

② Connector (CN102 7P on FB-201P board)

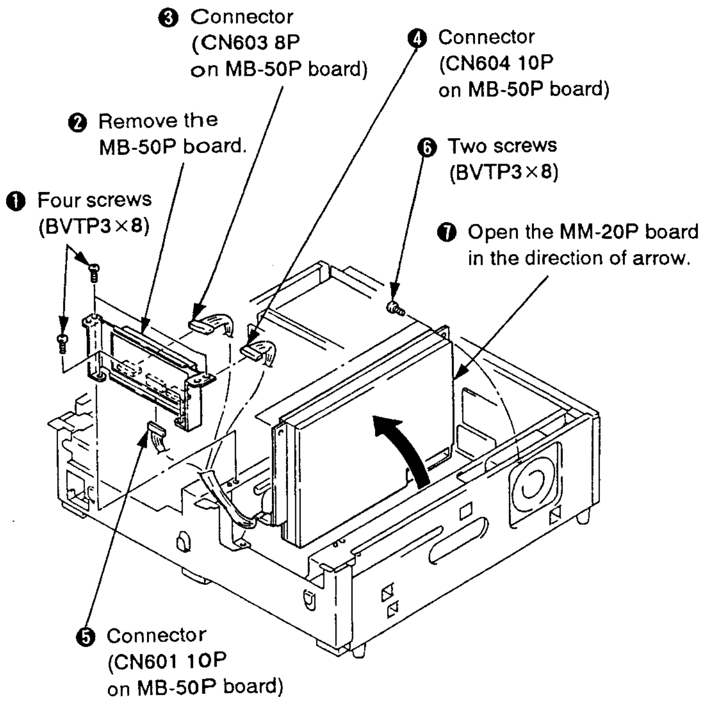
③ Connector (CN104 4P on FB-201P board)

④ Connector (CN801 13P on FB-201P board)

⑤ Connector (CN802 12P on FB-201P board)

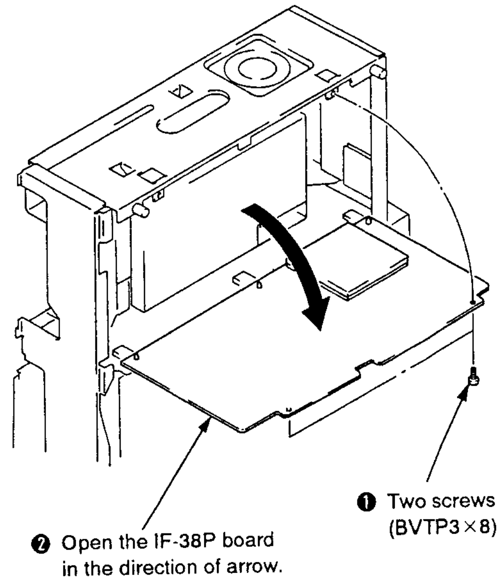
⑦ Three screws (BVTP3×8)

2-4. REMOVAL OF MB-50P BOARD AND OPENING OF MM-20P BOARD



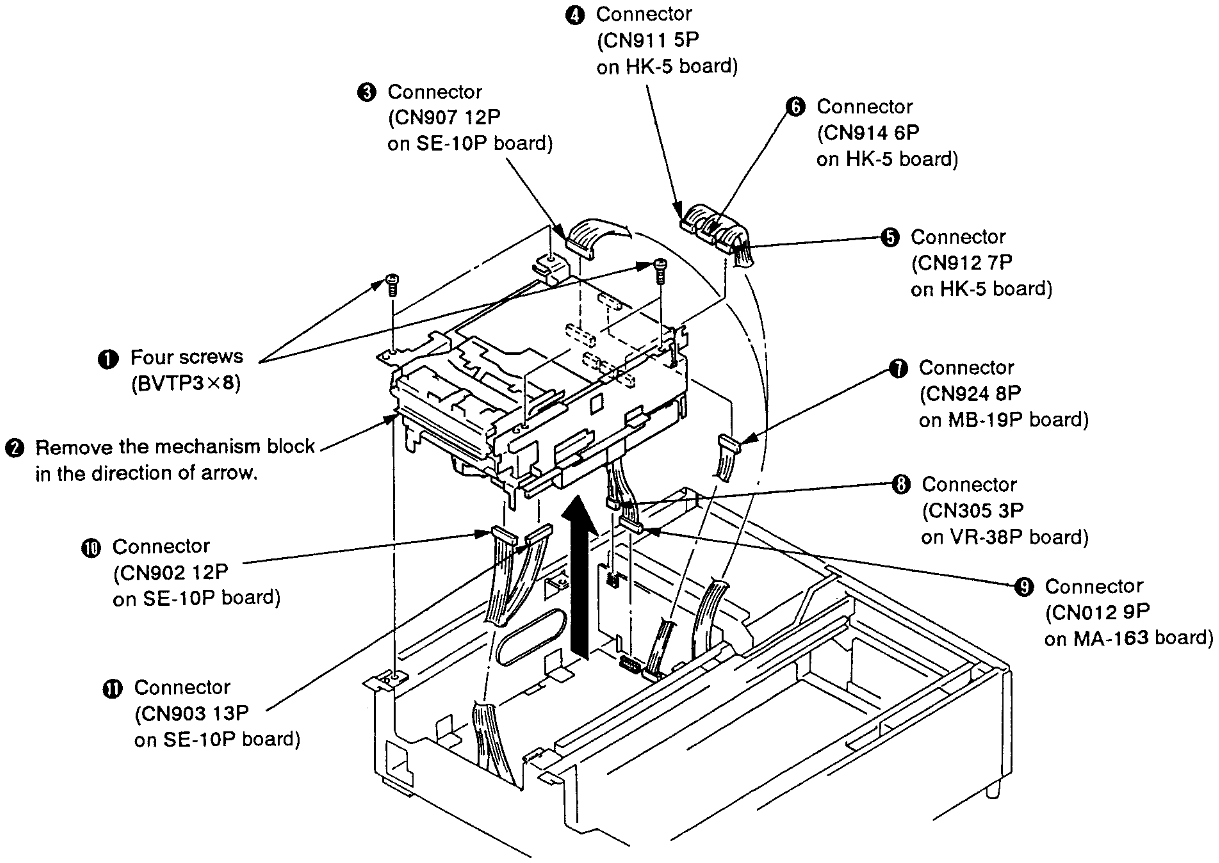
❶ Four screws (BVTP3×8)
❷ Remove the MB-50P board.
❸ Connector (CN603 8P on MB-50P board)
❹ Connector (CN604 10P on MB-50P board)
❺ Connector (CN601 10P on MB-50P board)
❻ Two screws (BVTP3×8)
❼ Open the MM-20P board in the direction of arrow.

2-5. OPENING OF IF-38P BOARD



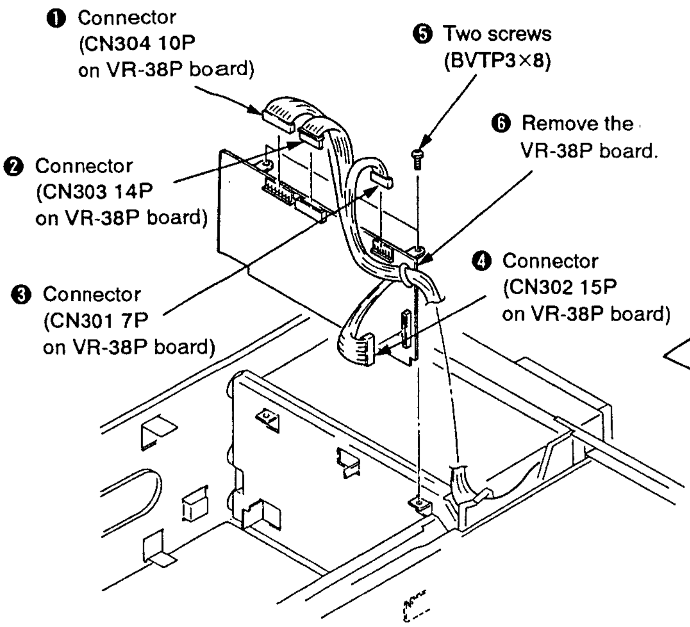
❶ Two screws (BVTP3×8)
❷ Open the IF-38P board in the direction of arrow.

2-6. REMOVAL OF MECHANISM BLOCK

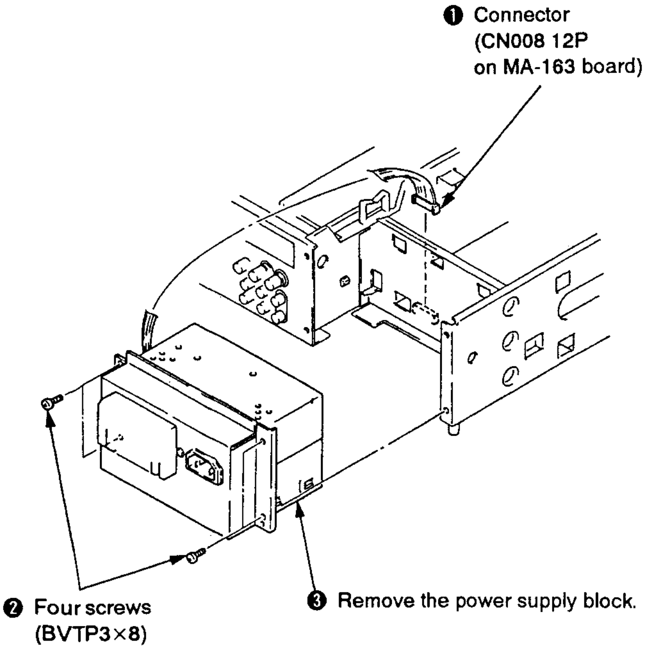


❶ Four screws (BVTP3×8)
❷ Remove the mechanism block in the direction of arrow.
❸ Connector (CN907 12P on SE-10P board)
❹ Connector (CN911 5P on HK-5 board)
❺ Connector (CN912 7P on HK-5 board)
❻ Connector (CN914 6P on HK-5 board)
❼ Connector (CN924 8P on MB-19P board)
❽ Connector (CN305 3P on VR-38P board)
❾ Connector (CN012 9P on MA-163 board)
❿ Connector (CN902 12P on SE-10P board)
⓫ Connector (CN903 13P on SE-10P board)

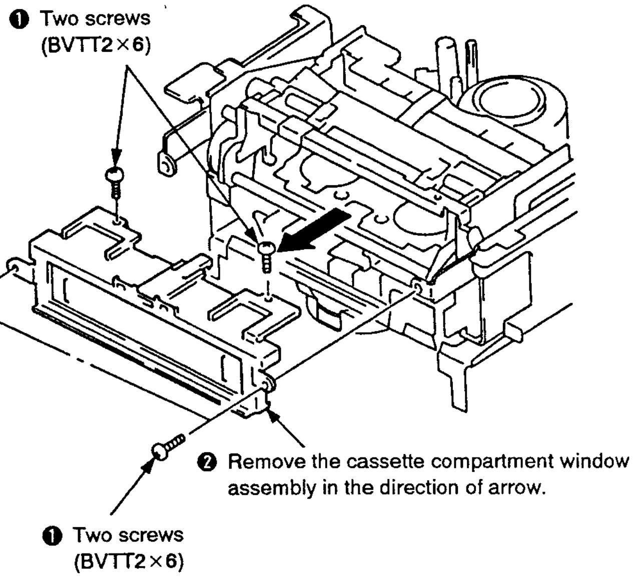
2-7. REMOVAL OF VR-38P BOARD


❶ Connector (CN304 10P on VR-38P board)
❷ Connector (CN303 14P on VR-38P board)
❸ Connector (CN301 7P on VR-38P board)
❹ Connector (CN302 15P on VR-38P board)
❺ Two screws (BVTP3×8)
❻ Remove the VR-38P board.

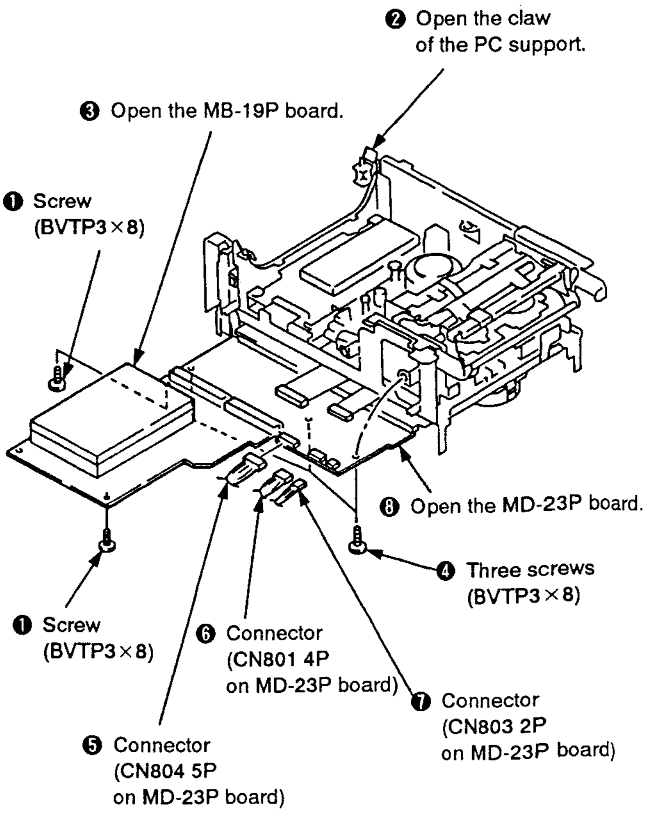
2-8. REMOVAL OF POWER SUPPLY BLOCK


❶ Connector (CN008 12P on MA-163 board)
❷ Four screws (BVTP3×8)
❸ Remove the power supply block.

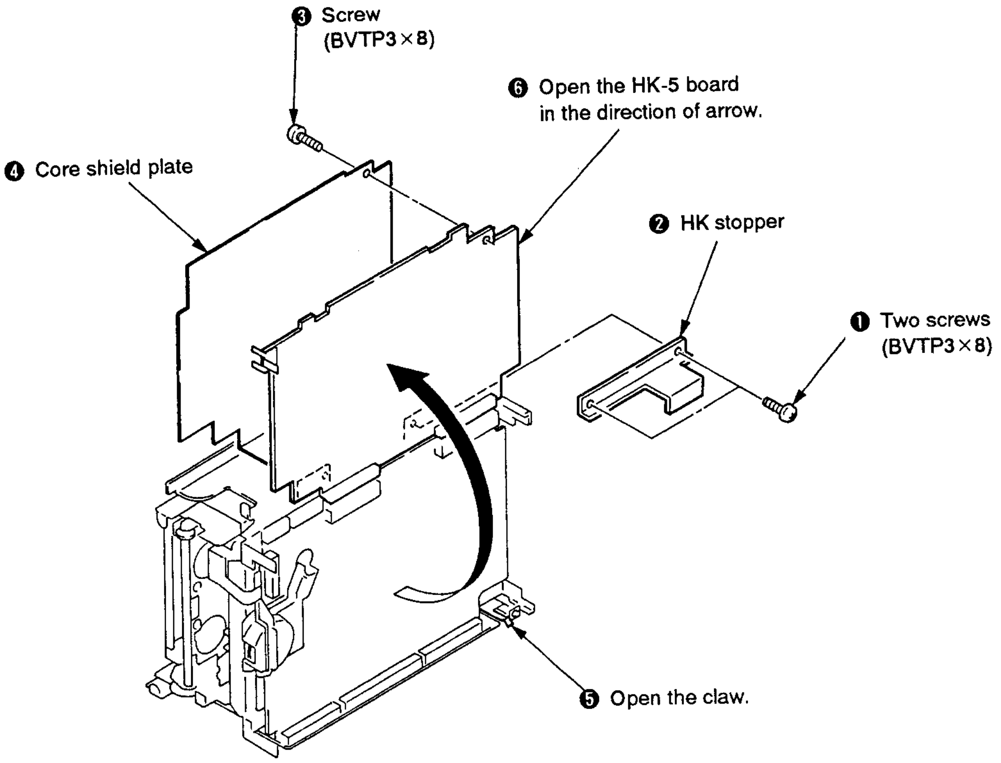
2-9. REMOVAL OF CASSETTE COMPARTMENT WINDOW ASSEMBLY


❶ Two screws (BVTT2×6)
❷ Remove the cassette compartment window assembly in the direction of arrow.
❶ Two screws (BVTT2×6)

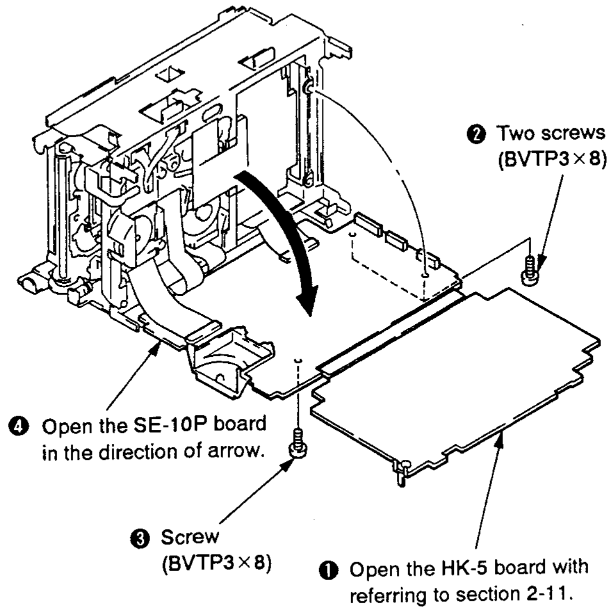
2-10. OPENING OF MB-19P AND MD-23P BOARDS


❷ Open the claw of the PC support.
❸ Open the MB-19P board.
❶ Screw (BVTP3×8)
❽ Open the MD-23P board.
❹ Three screws (BVTP3×8)
❶ Screw (BVTP3×8)
❻ Connector (CN801 4P on MD-23P board)
❼ Connector (CN803 2P on MD-23P board)
❺ Connector (CN804 5P on MD-23P board)

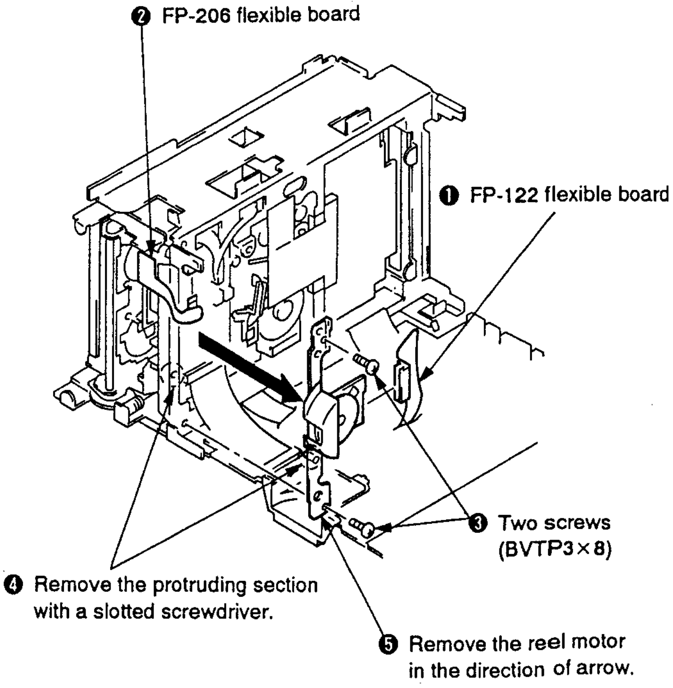
2-11. OPENING OF HK-5 BOARD


❸ Screw (BVTP3×8)
❻ Open the HK-5 board in the direction of arrow.
❹ Core shield plate
❷ HK stopper
❶ Two screws (BVTP3×8)
❺ Open the claw.

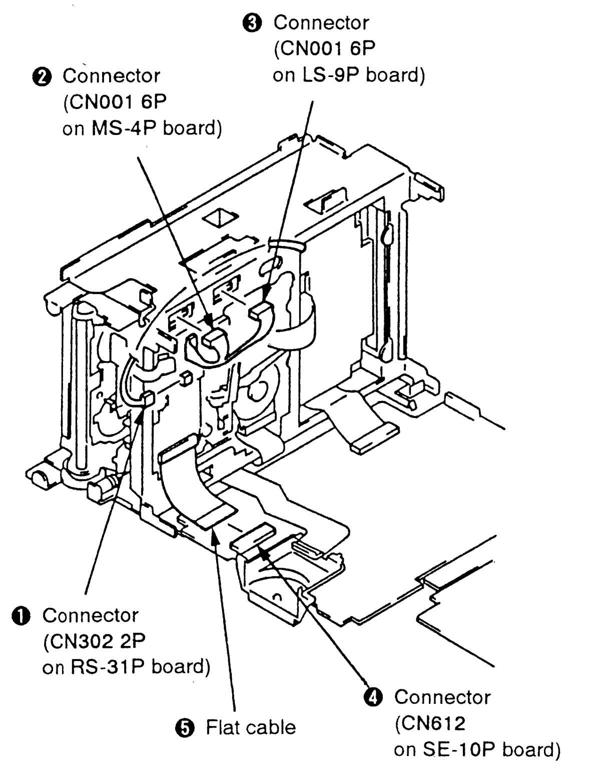
2-12. OPENING OF SE-10P BOARD

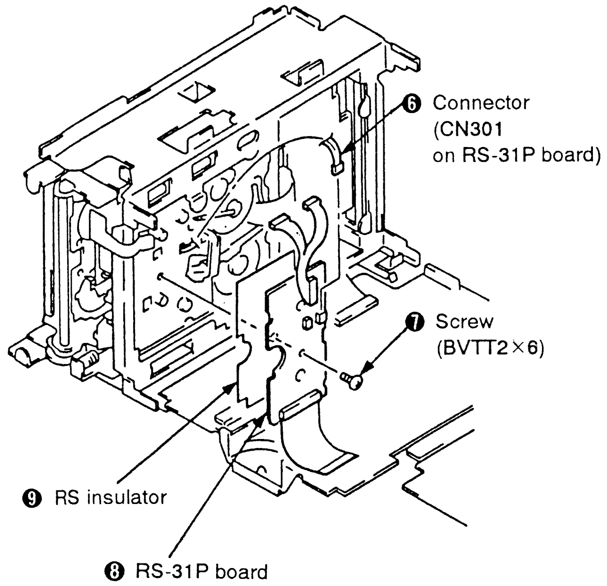

❷ Two screws (BVTP3×8)
❹ Open the SE-10P board in the direction of arrow.
❸ Screw (BVTP3×8)
❶ Open the HK-5 board with referring to section 2-11.

2-13. REMOVAL OF REEL MOTOR

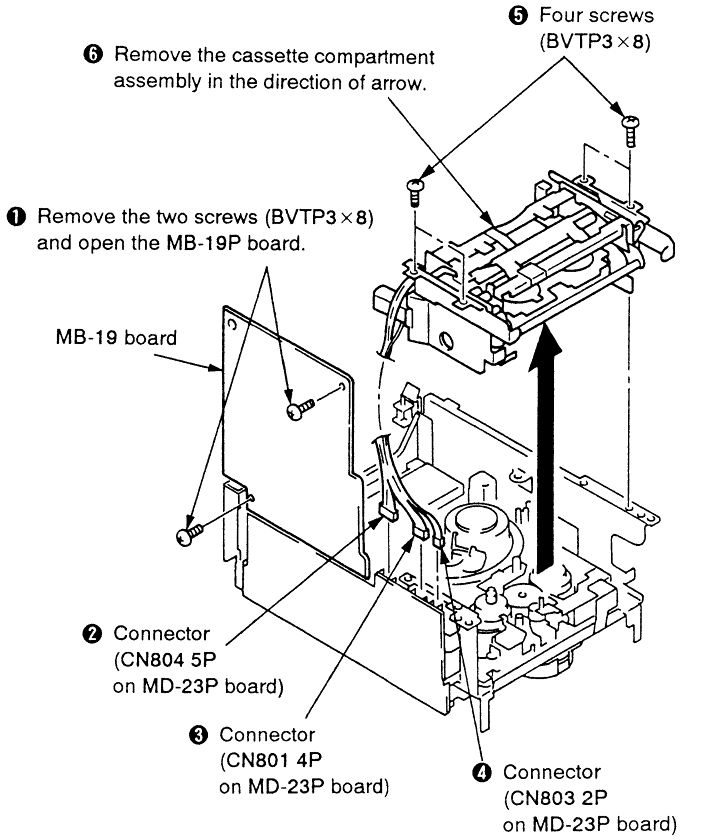

❷ FP-206 flexible board
❶ FP-122 flexible board
❸ Two screws (BVTP3×8)
❹ Remove the protruding section with a slotted screwdriver.
❺ Remove the reel motor in the direction of arrow.

2-14. REMOVAL OF RS-31P BOARD

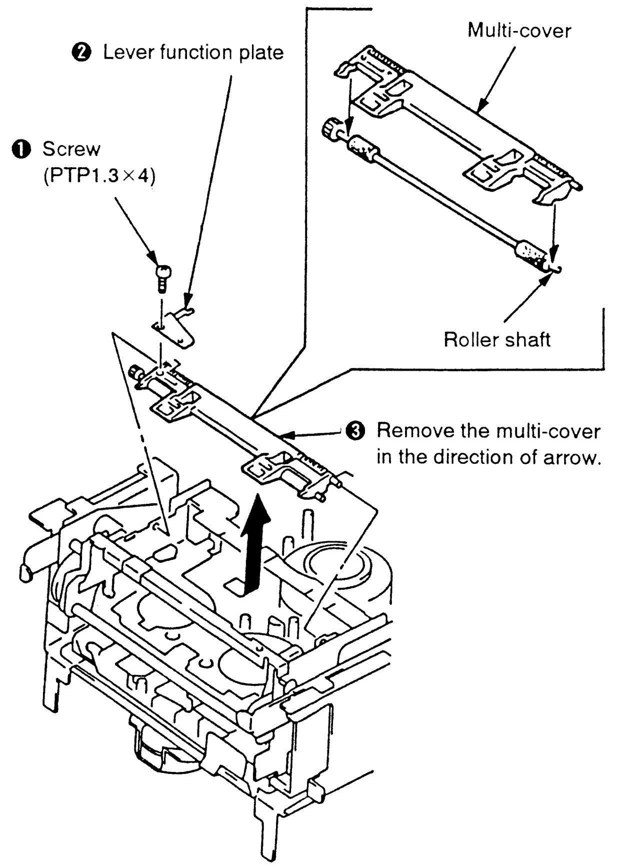

❸ Connector (CN001 6P on LS-9P board)
❷ Connector (CN001 6P on MS-4P board)
❶ Connector (CN302 2P on RS-31P board)
❺ Flat cable
❹ Connector (CN612 on SE-10P board)


❻ Connector (CN301 on RS-31P board)
❼ Screw (BVTT2×6)
❾ RS insulator
❽ RS-31P board

2-15. REMOVAL OF CASSETTE COMPARTMENT ASSEMBLY

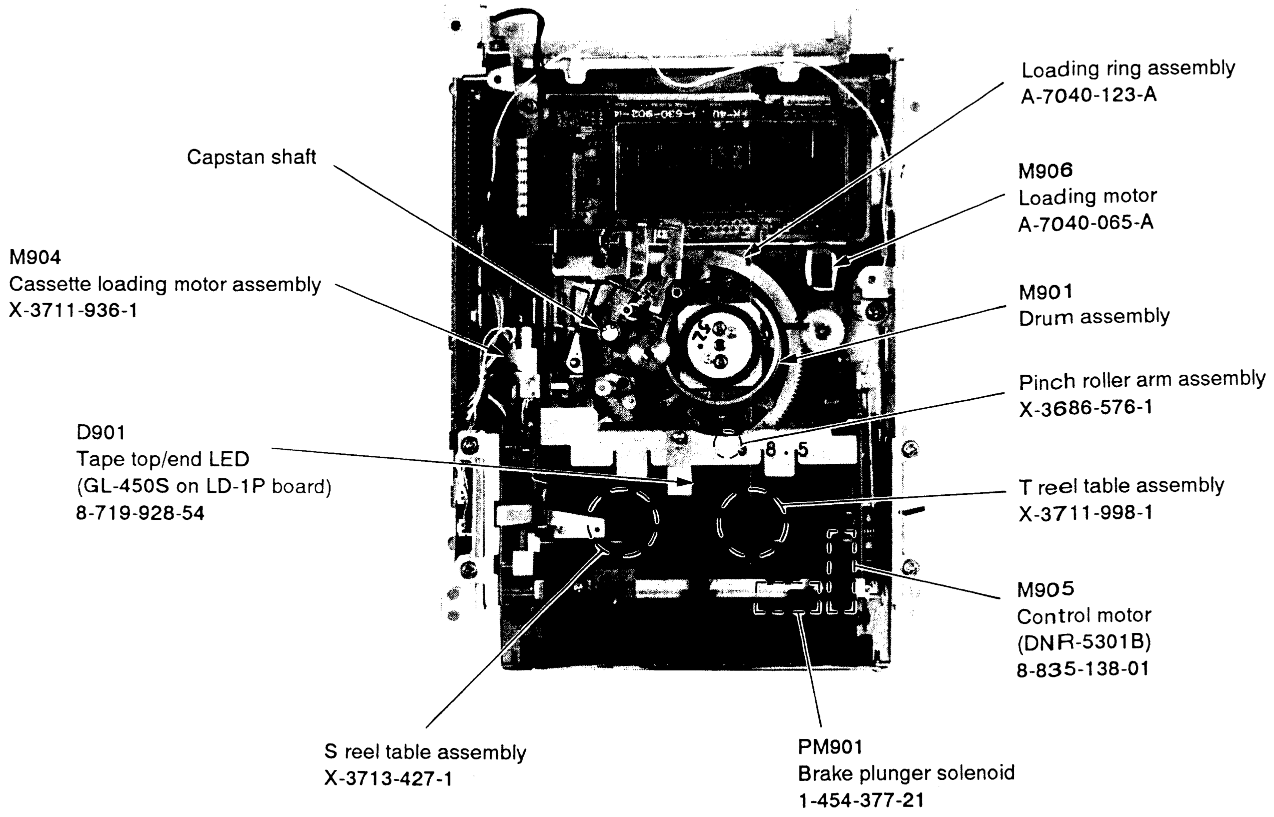

❺ Four screws (BVTP3×8)
❻ Remove the cassette compartment assembly in the direction of arrow.
❶ Remove the two screws (BVTP3×8) and open the MB-19P board.
MB-19 board
❷ Connector (CN804 5P on MD-23P board)
❸ Connector (CN801 4P on MD-23P board)
❹ Connector (CN803 2P on MD-23P board)

2-16. REMOVAL OF MULTI-COVER AND ROLLER SHAFT

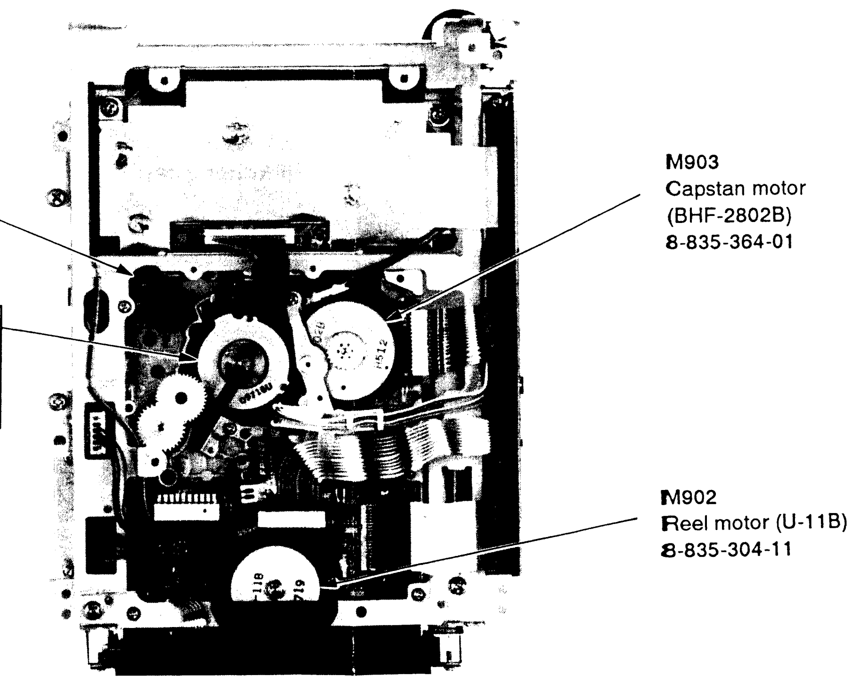

❷ Lever function plate
Multi-cover
❶ Screw (PTP1.3×4)
Roller shaft
❸ Remove the multi-cover in the direction of arrow.

2-17. INTERNAL VIEW

– Top side –


Capstan shaft
M904
Cassette loading motor assembly
X-3711-936-1
D901
Tape top/end LED
(GL-450S on LD-1P board)
8-719-928-54
S reel table assembly
X-3713-427-1
PM901
Brake plunger solenoid
1-454-377-21
Loading ring assembly
A-7040-123-A
M906
Loading motor
A-7040-065-A
M901
Drum assembly
Pinch roller arm assembly
X-3686-576-1
T reel table assembly
X-3711-998-1
M905
Control motor
(DNR-5301B)
8-835-138-01

– Bottom side –

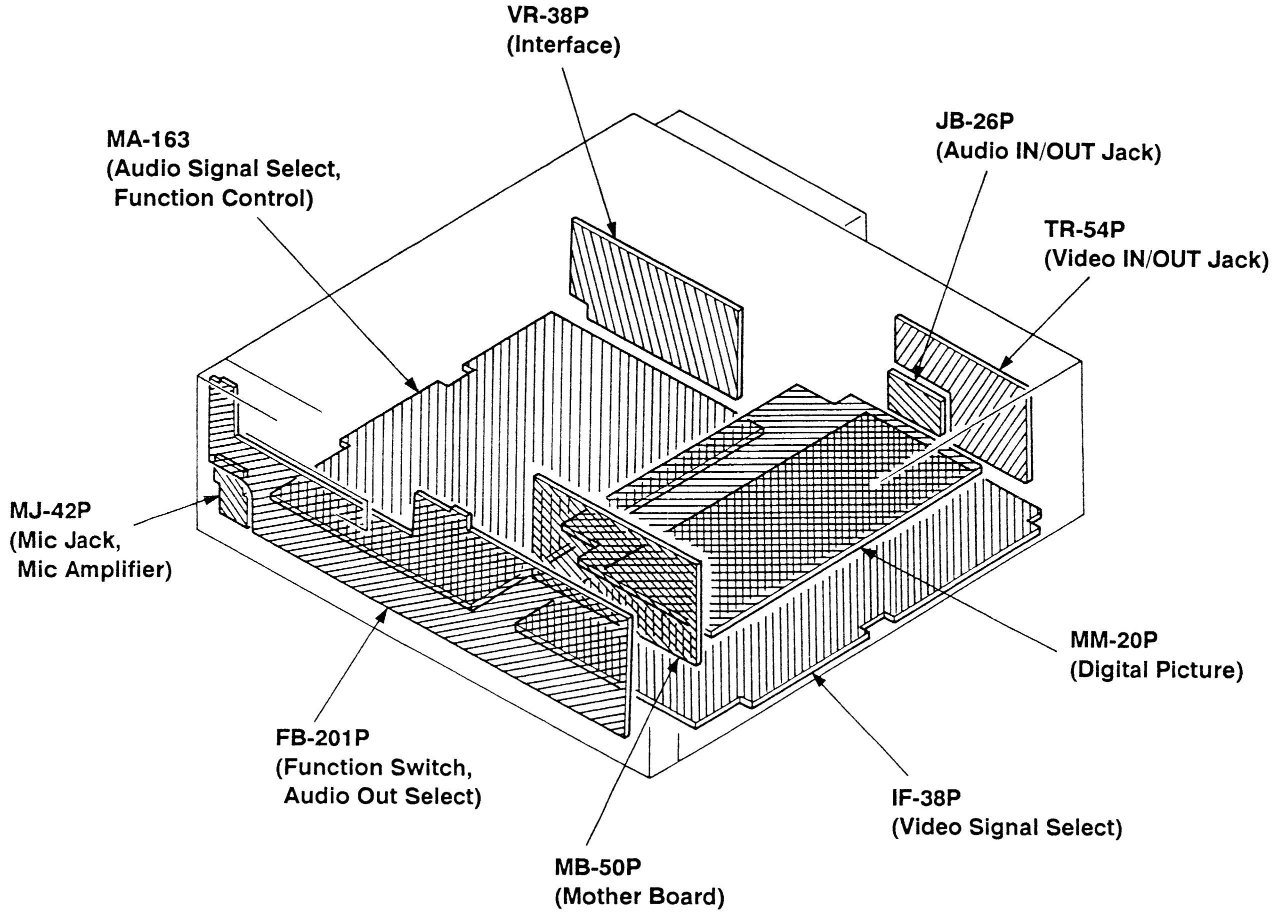

M906
Loading motor assembly
A-7040-065-A
M903
Capstan motor
(BHF-2802B)
8-835-364-01
M902
Reel motor (U-11B)
8-835-304-11

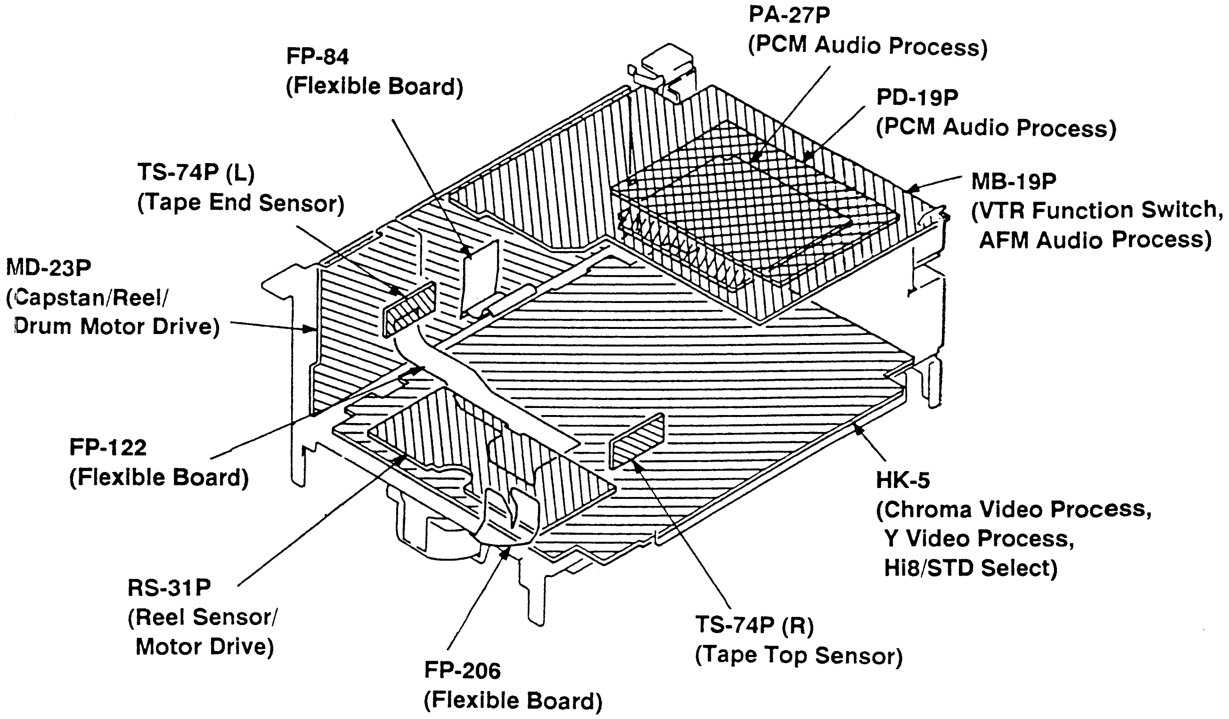
M901

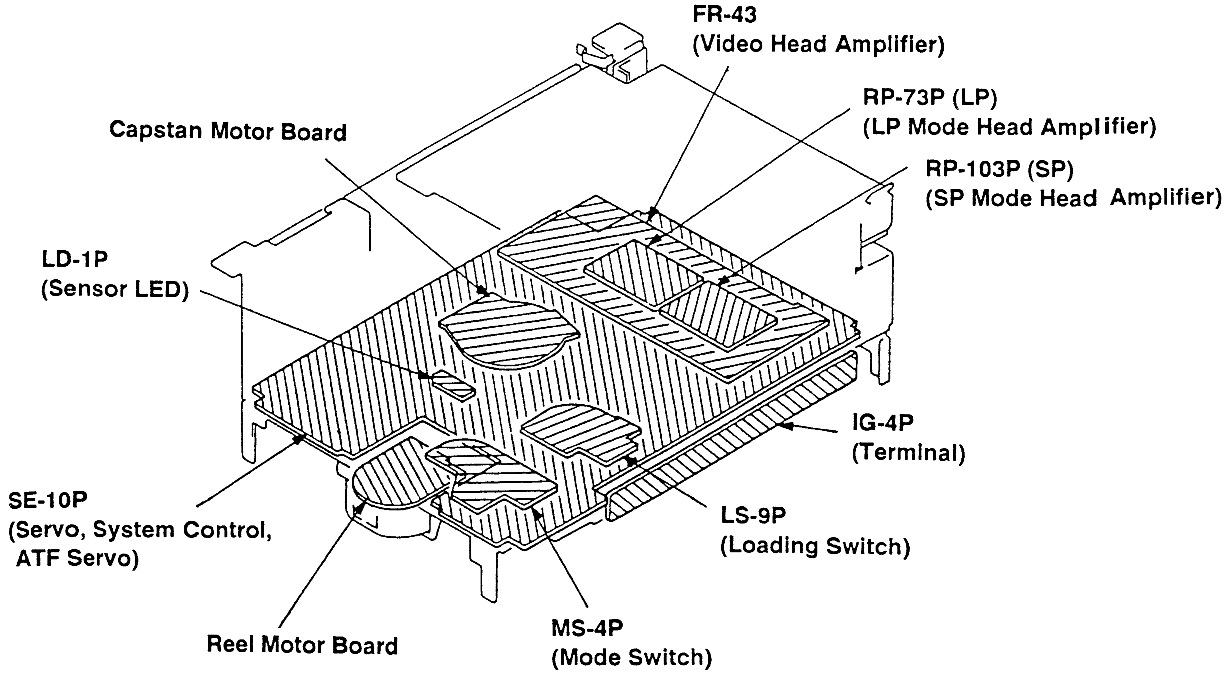
Drum assembly (DGH-0A0A-R)	A-7048-650-A
Rotary upper drum assembly (DGR-0A0-R)	A-7049-588-A

SECTION 3
DIAGRAMS

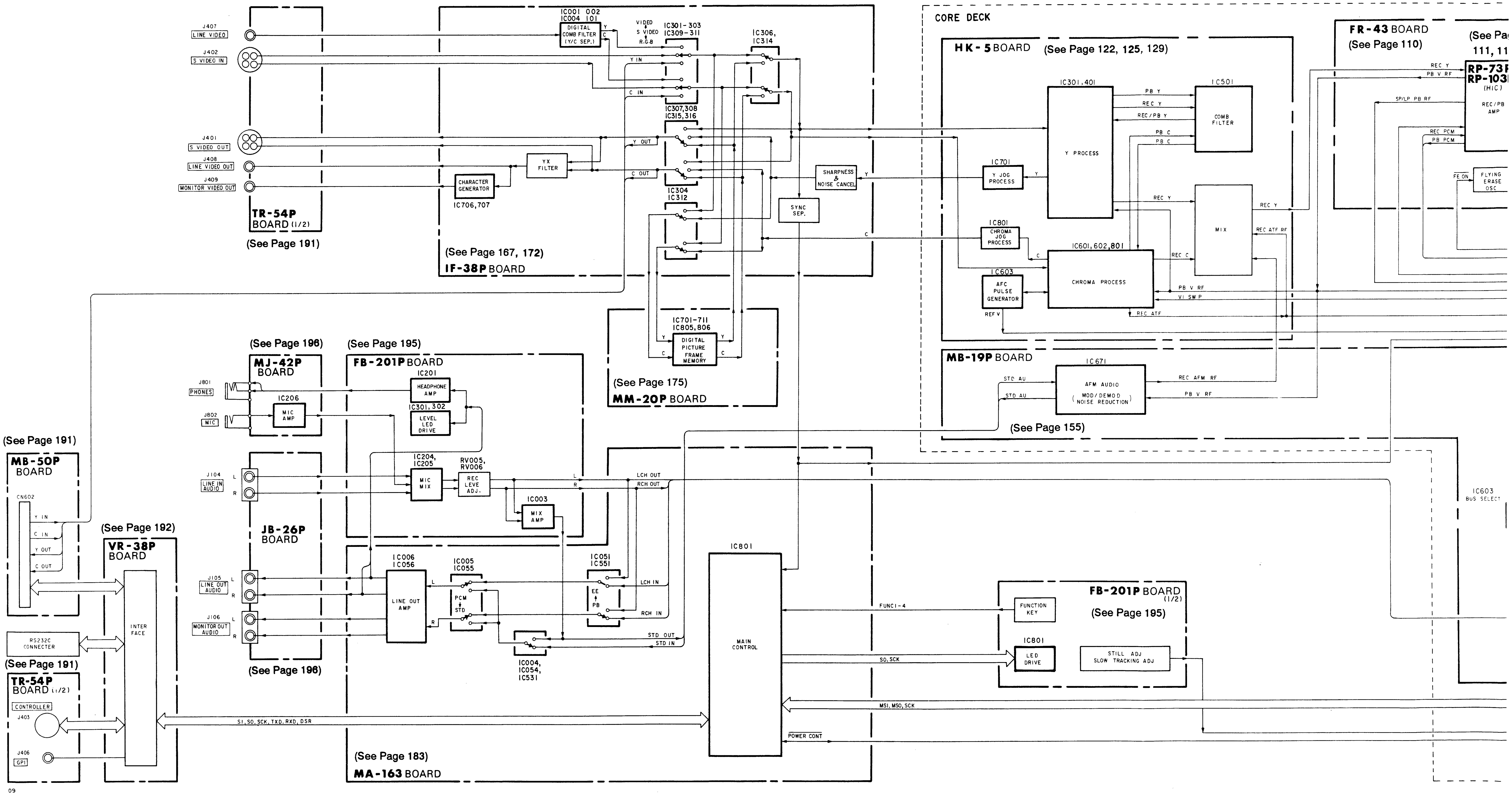
3-1. CIRCUIT BOARDS LOCATION

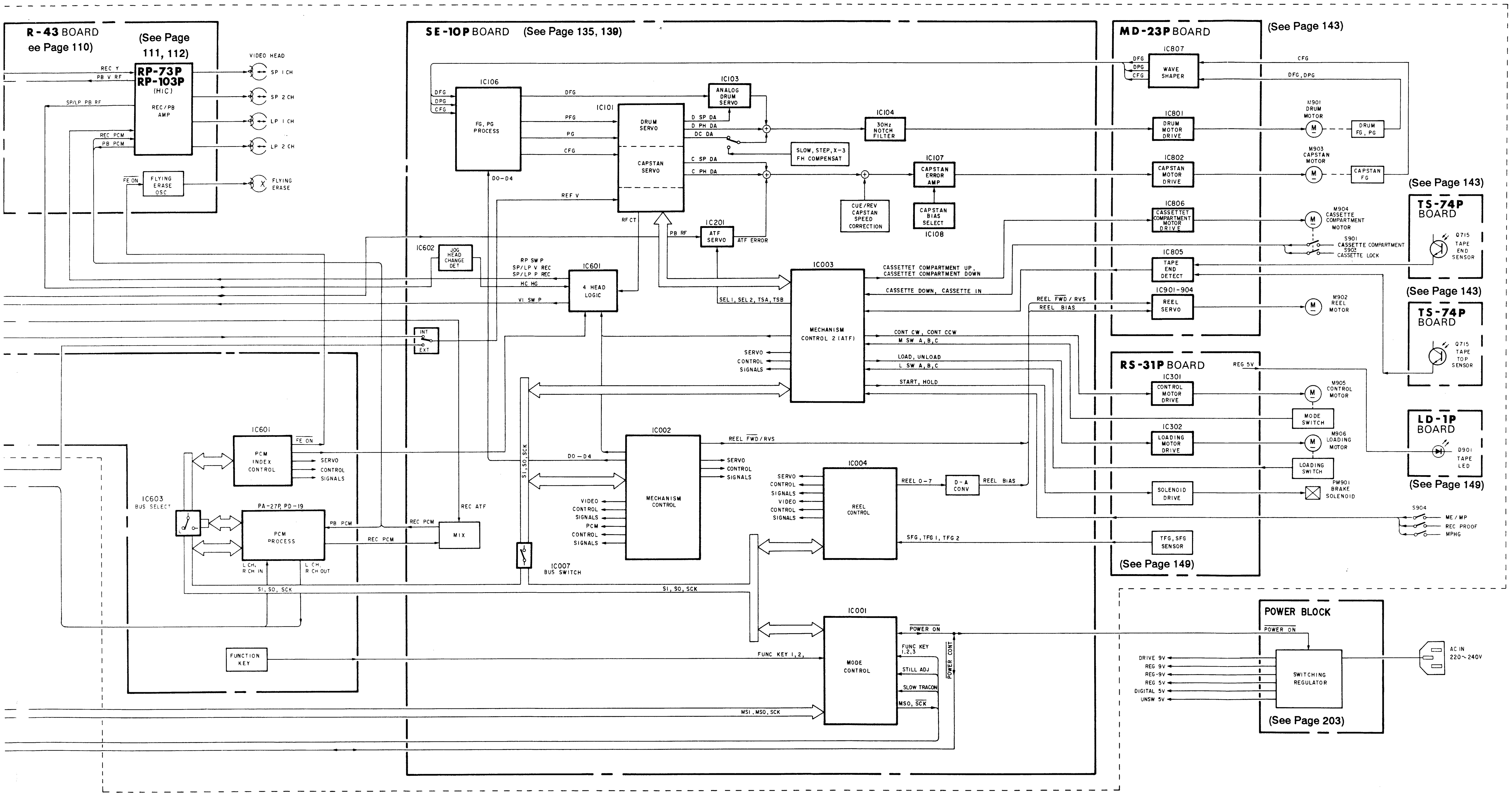

VR-38P
(Interface)
MA-163
(Audio Signal Select,
Function Control)
JB-26P
(Audio IN/OUT Jack)
TR-54P
(Video IN/OUT Jack)
MJ-42P
(Mic Jack,
Mic Amplifier)
MM-20P
(Digital Picture)
FB-201P
(Function Switch,
Audio Out Select)
IF-38P
(Video Signal Select)
MB-50P
(Mother Board)


PA-27P
(PCM Audio Process)
FP-84
(Flexible Board)
PD-19P
(PCM Audio Process)
TS-74P (L)
(Tape End Sensor)
MB-19P
(VTR Function Switch,
AFM Audio Process)
MD-23P
(Capstan/Reel/
Drum Motor Drive)
FP-122
(Flexible Board)
HK-5
(Chroma Video Process,
Y Video Process,
Hi8/STD Select)
RS-31P
(Reel Sensor/
Motor Drive)
TS-74P (R)
(Tape Top Sensor)
FP-206
(Flexible Board)

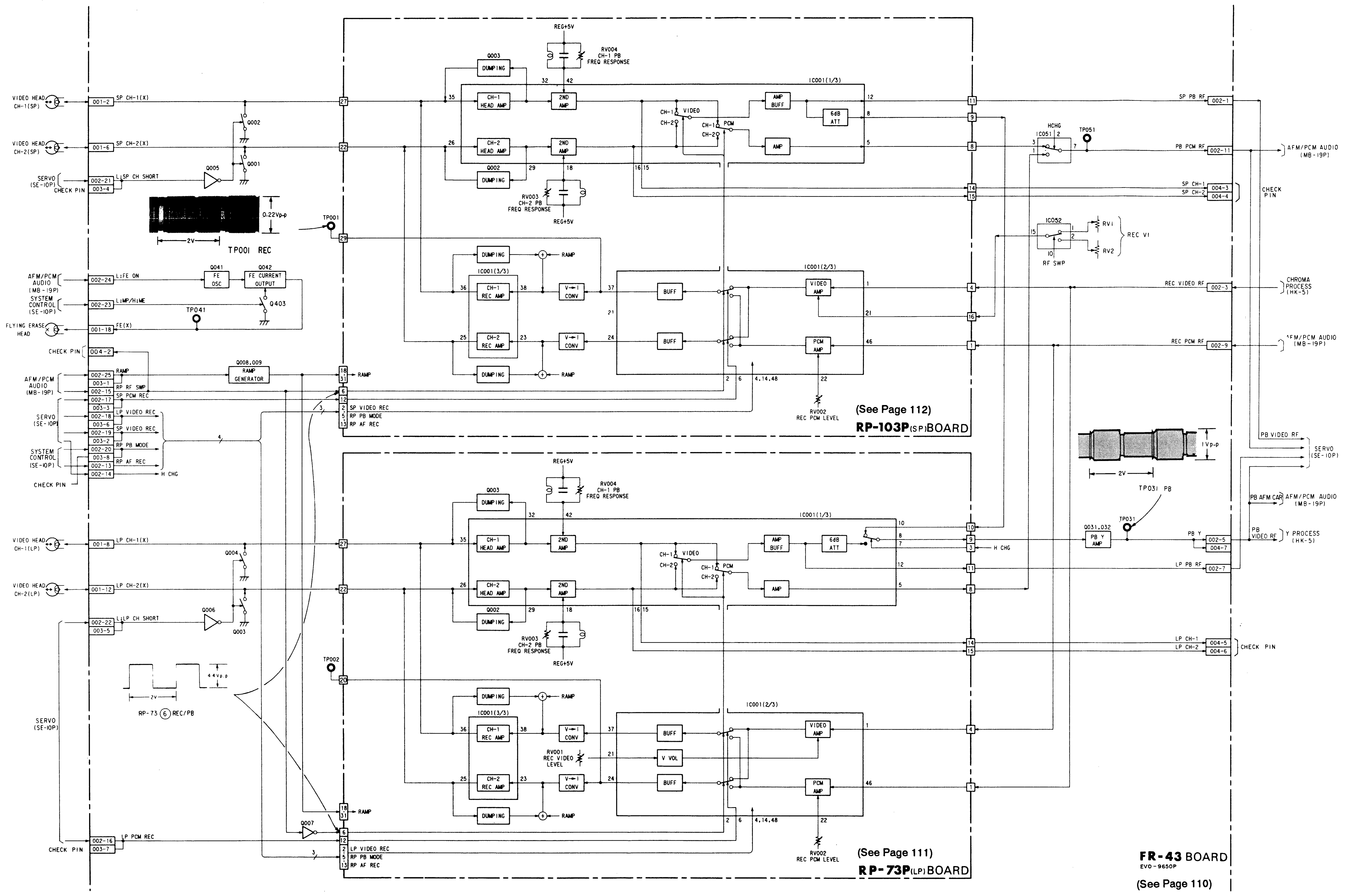

FR-43
(Video Head Amplifier)
RP-73P (LP)
(LP Mode Head Amplifier)
Capstan Motor Board
RP-103P (SP)
(SP Mode Head Amplifier)
LD-1P
(Sensor LED)
IG-4P
(Terminal)
SE-10P
(Servo, System Control,
ATF Servo)
LS-9P
(Loading Switch)
Reel Motor Board
MS-4P
(Mode Switch)

3-2. OVERALL BLOCK DIAGRAM

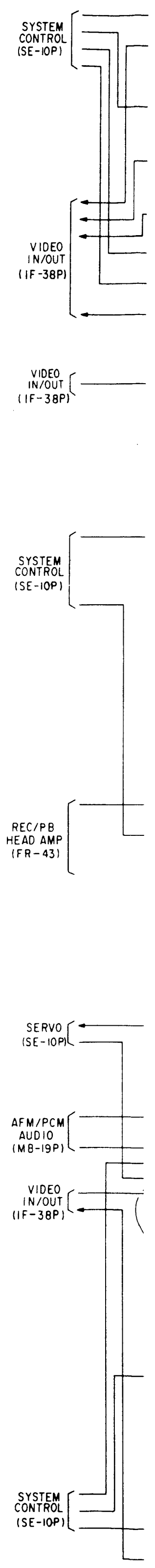

J407
LINE VIDEO
J402
S VIDEO IN
J401
S VIDEO OUT
J408
LINE VIDEO OUT
J409
MONITOR VIDEO OUT
TR-54P
BOARD (1/2)
(See Page 191)
IC001 002
IC004 101
DIGITAL COMB FILTER (Y/C SEP.)
Y
C
VIDEO
S VIDEO
R.G.B
IC301-303
IC309-311
Y IN
C IN
IC306,
IC314
IC307,308
IC315,316
Y OUT
C OUT
IC304
IC312
YX FILTER
CHARACTER GENERATOR
IC706,707
SHARPNESS & NOISE CANCEL
SYNC SEP.
(See Page 167, 172)
IF-38P BOARD
IC701-711
IC805,806
DIGITAL PICTURE FRAME MEMORY
(See Page 175)
MM-20P BOARD
CORE DECK
HK-5 BOARD
(See Page 122, 125, 129)
IC301,401
Y PROCESS
PB Y
REC Y
REC/PB Y
PB C
IC501
COMB FILTER
IC701
Y JOG PROCESS
IC801
CHROMA JOG PROCESS
IC601,602,801
CHROMA PROCESS
IC603
AFC PULSE GENERATOR
REF V
MIX
REC C
REC ATF RF
PB V RF
VI SW P
REC ATF
MB-19P BOARD
IC671
AFM AUDIO (MOD/DEMOD NOISE REDUCTION)
STD AU
REC AFM RF
(See Page 155)
FR-43 BOARD
(See Page 110)
(See Pa
111, 11
RP-73
RP-103
(HIC)
REC/PB AMP
SP/LP PB RF
REC PCM
PB PCM
FE ON
FLYING ERASE OSC
(See Page 196)
MJ-42P
BOARD
J801
PHONES
J802
MIC
IC206
MIC AMP
(See Page 195)
FB-201P BOARD
IC201
HEADPHONE AMP
IC301,302
LEVEL LED DRIVE
IC204,
IC205
MIC MIX
RV005,
RV006
REC LEVE ADJ.
IC003
MIX AMP
LCH OUT
RCH OUT
J104
LINE IN AUDIO
JB-26P
BOARD
J105
LINE OUT AUDIO
J106
MONITOR OUT AUDIO
(See Page 196)
IC006
IC056
LINE OUT AMP
IC005
IC055
PCM
STD
IC051
IC551
EE
PB
LCH IN
RCH IN
STD OUT
STD IN
IC004,
IC054,
IC531
IC801
MAIN CONTROL
FUNC1-4
SO, SCK
MSI, MSO, SCK
POWER CONT
(See Page 183)
MA-163 BOARD
FB-201P BOARD (1/2)
(See Page 195)
FUNCTION KEY
IC801
LED DRIVE
STILL ADJ
SLOW TRACKING ADJ
IC603
BUS SELECT
(See Page 191)
MB-50P
BOARD
CN602
Y IN
C IN
Y OUT
C OUT
(See Page 192)
VR-38P
BOARD
INTER FACE
RS232C CONNECTER
(See Page 191)
TR-54P
BOARD (1/2)
CONTROLLER
J403
J406
GPI
SI, SO, SCK, TXD, RXD, DSR
L
R
09


R-43 BOARD
ee Page 110)
(See Page 111, 112)
RP-73P
RP-103P
(HIC)
REC/PB AMP
REC Y
PB V RF
SP/LP PB RF
REC PCM
PB PCM
FE ON
FLYING ERASE OSC
VIDEO HEAD
SP 1 CH
SP 2 CH
LP 1 CH
LP 2 CH
FLYING ERASE
SE-10P BOARD (See Page 135, 139)
IC106
FG, PG PROCESS
DFG
DPG
CFG
PFG
PG
D0–D4
IC101
DRUM SERVO
CAPSTAN SERVO
REF V
RF CT
IC103
ANALOG DRUM SERVO
D SP DA
D PH DA
DC DA
C SP DA
C PH DA
IC104
30Hz NOTCH FILTER
SLOW, STEP, X-3 FH COMPENSAT
IC107
CAPSTAN ERROR AMP
CUE/REV CAPSTAN SPEED CORRECTION
CAPSTAN BIAS SELECT
IC108
IC201
ATF SERVO
PB RF
ATF ERROR
IC602
JOG HEAD CHANGE DET
RP SW P
SP/LP V REC
SP/LP P REC
HC HG
VI SW P
IC601
4 HEAD LOGIC
INT
EXT
IC003
MECHANISM CONTROL 2 (ATF)
SEL1, SEL2, TSA, TSB
CASSETTET COMPARTMENT UP, CASSETTET COMPARTMENT DOWN
CASSETTE DOWN, CASSETTE IN
REEL FWD / RVS
REEL BIAS
CONT CW, CONT CCW
M SW A, B, C
LOAD, UNLOAD
L SW A, B, C
START, HOLD
SERVO CONTROL SIGNALS
IC601
PCM INDEX CONTROL
FE ON
SERVO CONTROL SIGNALS
IC603
BUS SELECT
PA-27P, PD-19
PCM PROCESS
PB PCM
REC PCM
L CH, R CH IN
L CH, R CH OUT
MIX
REC ATF
SI, SO, SCK
IC007
BUS SWITCH
IC002
MECHANISM CONTROL
D0–D4
REEL FWD/RVS
SERVO CONTROL SIGNALS
VIDEO CONTROL SIGNALS
PCM CONTROL SIGNALS
IC004
REEL CONTROL
REEL 0–7
D-A CONV
REEL BIAS
SFG, TFG 1, TFG 2
IC001
MODE CONTROL
POWER ON
FUNC KEY 1, 2, 3
STILL ADJ
SLOW TRACON
MSO, SCK
POWER CONT
FUNCTION KEY
FUNC KEY 1, 2,
MSI, MSO, SCK
MD-23P BOARD
(See Page 143)
IC807
WAVE SHAPER
CFG
DFG, DPG
IC801
DRUM MOTOR DRIVE
M901
DRUM MOTOR
DRUM FG, PG
IC802
CAPSTAN MOTOR DRIVE
M903
CAPSTAN MOTOR
CAPSTAN FG
IC806
CASSETTET COMPARTMENT MOTOR DRIVE
M904
CASSETTE COMPARTMENT MOTOR
S901
CASSETTE COMPARTMENT
S902
CASSETTE LOCK
IC805
TAPE END DETECT
IC901–904
REEL SERVO
M902
REEL MOTOR
(See Page 143)
TS-74P BOARD
Q715
TAPE END SENSOR
(See Page 143)
TS-74P BOARD
Q715
TAPE TOP SENSOR
RS-31P BOARD
REG 5V
IC301
CONTROL MOTOR DRIVE
M905
CONTROL MOTOR
MODE SWITCH
IC302
LOADING MOTOR DRIVE
M906
LOADING MOTOR
LOADING SWITCH
SOLENOID DRIVE
PM901
BRAKE SOLENOID
TFG, SFG SENSOR
(See Page 149)
LD-1P BOARD
D901
TAPE LED
(See Page 149)
S904
ME/MP
REC PROOF
MPHG
POWER BLOCK
POWER ON
SWITCHING REGULATOR
DRIVE 9V
REG 9V
REG -9V
REG 5V
DIGITAL 5V
UNSW 5V
AC IN
220∼240V
(See Page 203)

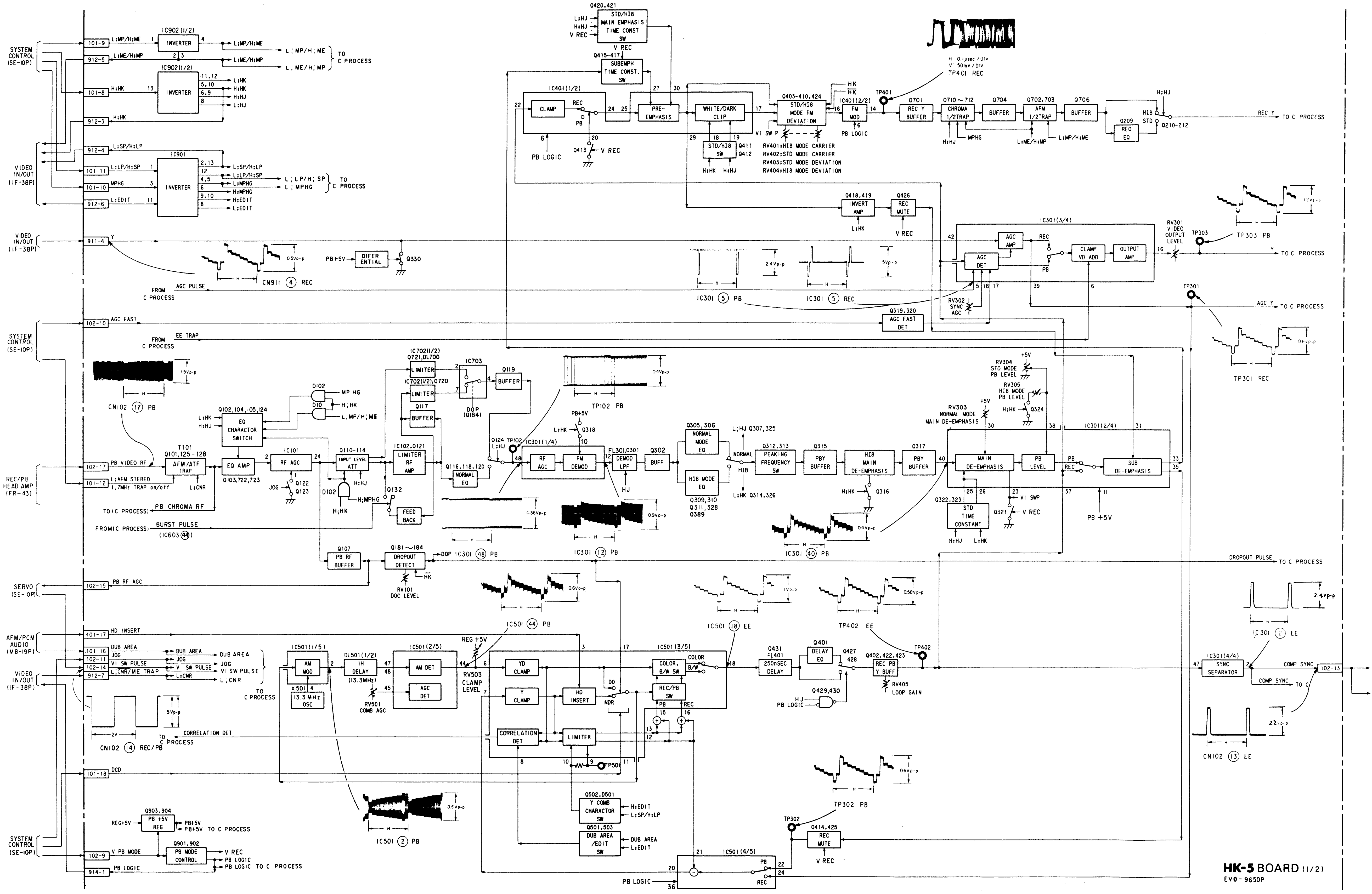
3-3. REC/PB HEAD AMP BLOCK DIAGRAM


VIDEO HEAD CH-1(SP)
VIDEO HEAD CH-2(SP)
SERVO (SE-10P)
CHECK PIN
001-2
001-6
002-21
003-4
SP CH-1(X)
SP CH-2(X)
L:SP CH SHORT
Q002
Q001
Q005
0.22Vp-p
2V
TP001 REC
TP001
AFM/PCM AUDIO (MB-19P)
SYSTEM CONTROL (SE-10P)
FLYING ERASE HEAD
002-24
002-23
001-18
L:FE ON
L:MP/H:ME
FE(X)
Q041 FE OSC
Q042 FE CURRENT OUTPUT
Q403
TP041
CHECK PIN
004-2
AFM/PCM AUDIO (MB-19P)
SERVO (SE-10P)
SYSTEM CONTROL (SE-10P)
002-25
003-1
002-15
002-17
003-3
002-18
003-6
002-19
003-2
002-20
003-8
002-13
002-14
RAMP
RP RF SWP
SP PCM REC
LP VIDEO REC
SP VIDEO REC
RP PB MODE
RP AF REC
H CHG
Q008,009 RAMP GENERATOR
REG+5V
RV004 CH-1 PB FREQ RESPONSE
Q003 DUMPING
Q002 DUMPING
IC001(1/3)
CH-1 HEAD AMP
CH-2 HEAD AMP
2ND AMP
AMP BUFF
6dB ATT
AMP
CH-1 VIDEO CH-2
CH-1 PCM CH-2
RV003 CH-2 PB FREQ RESPONSE
IC001(3/3)
CH-1 REC AMP
CH-2 REC AMP
V→I CONV
IC001(2/3)
BUFF
VIDEO AMP
PCM AMP
RV002 REC PCM LEVEL
DUMPING
RAMP
(See Page 112)
RP-103P(SP)BOARD
HCHG IC051
TP051
IC052
RV1
RV2
REC V1
RF SWP
SP PB RF
PB PCM RF
SP CH-1
SP CH-2
REC VIDEO RF
REC PCM RF
002-1
002-11
004-3
004-4
002-3
002-9
AFM/PCM AUDIO (MB-19P)
CHECK PIN
CHROMA PROCESS (HK-5)
AFM/PCM AUDIO (MB-19P)
1Vp-p
2V
TP031 PB
VIDEO HEAD CH-1(LP)
VIDEO HEAD CH-2(LP)
001-8
001-12
LP CH-1(X)
LP CH-2(X)
Q004
Q006
Q003
002-22
003-5
L:LP CH SHORT
4.4Vp-p
2V
RP-73 ⑥ REC/PB
SERVO (SE-10P)
TP002
RV001 REC VIDEO LEVEL
V VOL
Q007
CHECK PIN
002-16
003-7
LP PCM REC
LP VIDEO REC
RP PB MODE
RP AF REC
H CHG
(See Page 111)
RP-73P(LP)BOARD
Q031,032 PB Y AMP
TP031
PB Y
LP PB RF
002-5
004-7
002-7
LP CH-1
LP CH-2
004-5
004-6
CHECK PIN
PB VIDEO RF
SERVO (SE-10P)
PB AFM CAR
AFM/PCM AUDIO (MB-19P)
PB VIDEO RF
Y PROCESS (HK-5)
FR-43 BOARD
EVO-9650P
(See Page 110)

3-4. Y PR


SYSTEM CONTROL (SE-10P)
VIDEO IN/OUT (IF-38P)
VIDEO IN/OUT (IF-38P)
SYSTEM CONTROL (SE-10P)
REC/PB HEAD AMP (FR-43)
SERVO (SE-10P)
AFM/PCM AUDIO (MB-19P)
VIDEO IN/OUT (IF-38P)
SYSTEM CONTROL (SE-10P)

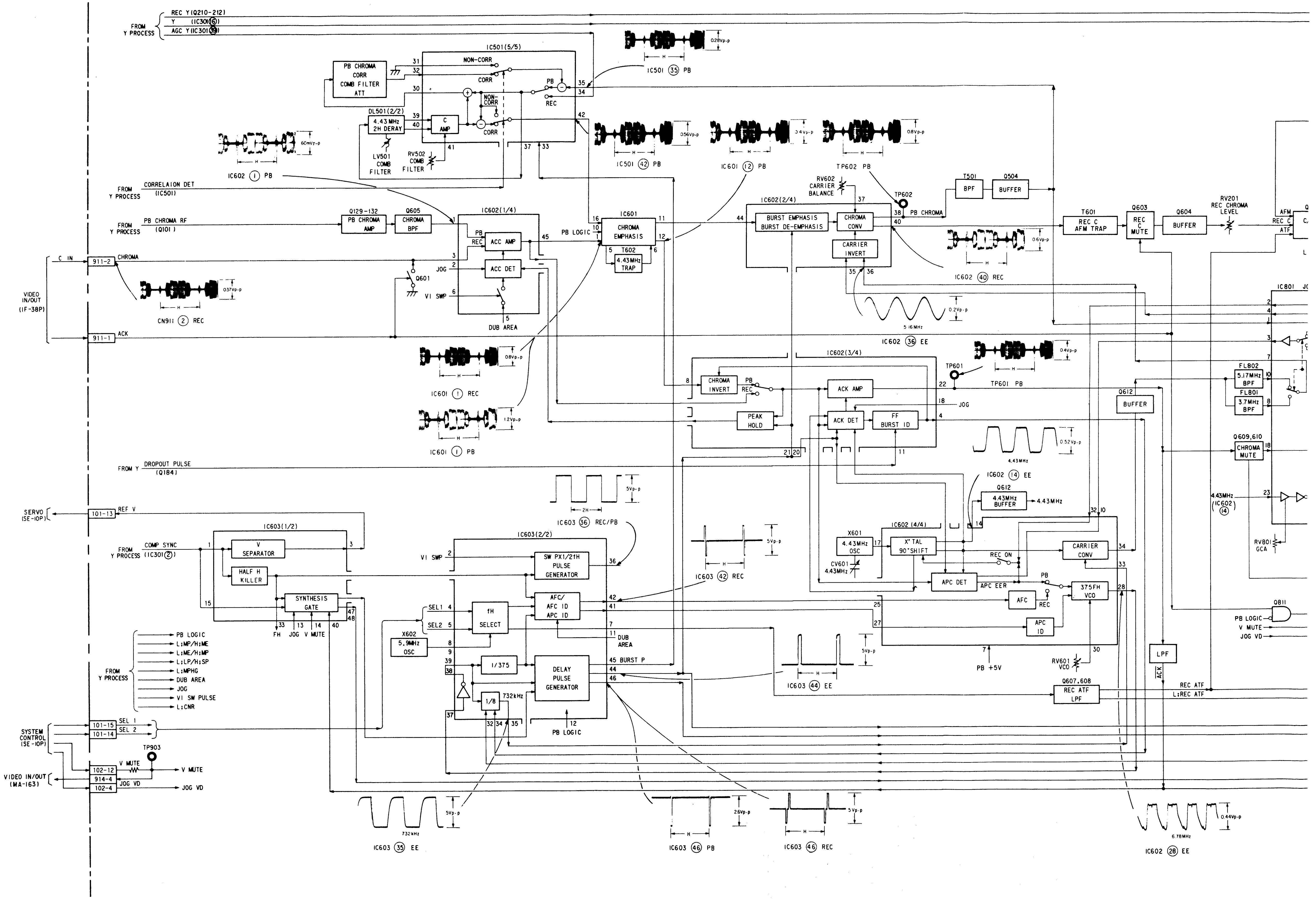
3-4. Y PROCESS BLOCK DIAGRAM

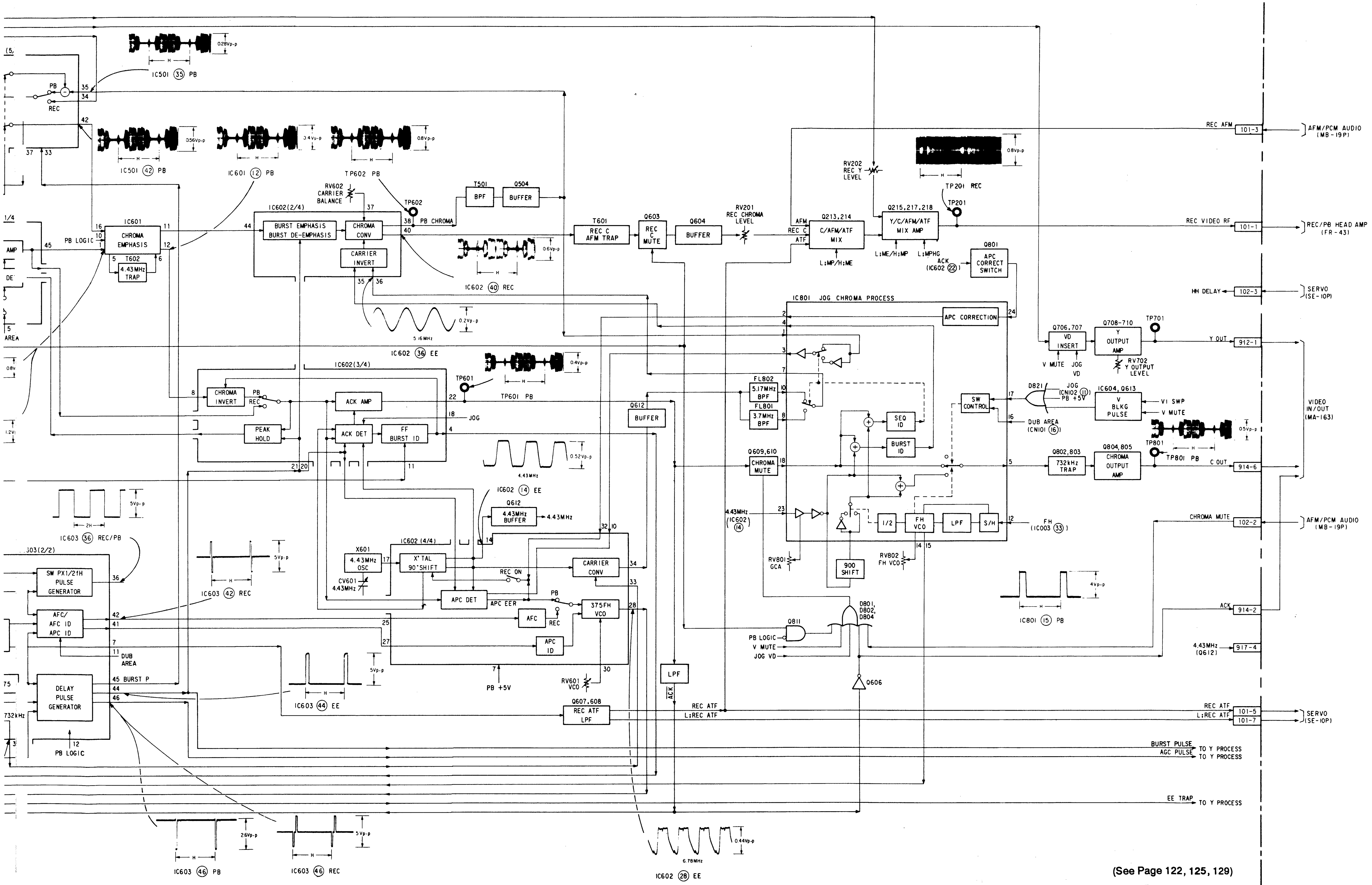

SYSTEM CONTROL (SE-10P)
VIDEO IN/OUT (IF-38P)
SERVO (SE-10P)
REC/PB HEAD AMP (FR-43)
AFM/PCM AUDIO (MB-19P)
IC902(1/2) INVERTER
IC901 INVERTER
L:MP/H:ME
L:ME/H:MP
TO C PROCESS
L:SP/H:LP
L:LP/H:SP
MPHG
L:EDIT
DIFER ENTIAL
Q330
PB+5V
CN911 ④ REC
FROM C PROCESS
AGC PULSE
AGC FAST
EE TRAP
CN102 ⑰ PB
PB VIDEO RF
L:AFM STEREO 1.7MHz TRAP on/off
T101 Q101,125-128 AFM/ATF TRAP
EQ AMP
Q103,722,723
Q102,104,105,124 EQ CHARACTOR SWITCH
IC101 RF AGC
Q110-114 INPUT LEVEL ATT
IC102,Q121 LIMITER RF AMP
FEED BACK
IC702(1/2) Q721,DL700 LIMITER
IC702(1/2),Q720 LIMITER
Q117 BUFFER
IC703
Q119 BUFFER
DOP (Q184)
Q116,118,120 NORMAL EQ
PB CHROMA RF
BURST PULSE
FROM(C PROCESS)
(IC603 ㊹)
Q107 PB RF BUFFER
Q181~184 DROPOUT DETECT
RV101 DOC LEVEL
DOP IC301 ㊽ PB
TP102 PB
IC301(1/4) RF AGC FM DEMOD
FL301,Q301 DEMOD LPF
Q302 BUFF
Q305,306 NORMAL MODE EQ
H18 MODE EQ
Q309,310 Q311,328 Q389
Q312,313 PEAKING FREQUENCY SW
Q315 PBY BUFFER
H18 MAIN DE-EMPHASIS
Q317 PBY BUFFER
IC301(2/4) MAIN DE-EMPHASIS PB LEVEL SUB DE-EMPHASIS
Q322,323 STD TIME CONSTANT
RV303 NORMAL MODE MAIN DE-EMPHASIS
RV304 STD MODE PB LEVEL
RV305 H18 MODE PB LEVEL
PB +5V
IC301 ⑫ PB
IC301 ㊵ PB
IC301 ⑤ PB
IC301 ⑤ REC
Q420,421 STD/HI8 MAIN EMPHASIS TIME CONST SW
Q415-417 SUBEMPH TIME CONST. SW
IC404(1/2) CLAMP
PRE-EMPHASIS
WHITE/DARK CLIP
STD/HI8 SW
Q403-410,424 STD/HI8 MODE FM DEVIATION
IC401(2/2) FM MOD
TP401 REC
RV401:HI8 MODE CARRIER
RV402:STD MODE CARRIER
RV403:STD MODE DEVIATION
RV404:HI8 MODE DEVIATION
Q701 REC Y BUFFER
Q710~712 CHROMA 1/2TRAP
Q704 BUFFER
Q702,703 AFM 1/2TRAP
Q706 BUFFER
Q209 REQ EQ
Q210-212
REC Y TO C PROCESS
Q418,419 INVERT AMP
Q426 REC MUTE
IC301(3/4) AGC AMP AGC DET CLAMP VD ADD OUTPUT AMP
RV301 VIDEO OUTPUT LEVEL
TP303 PB
Y TO C PROCESS
RV302 SYNC AGC
Q319,320 AGC FAST DET
TP301 REC
AGC Y TO C PROCESS
DROPOUT PULSE TO C PROCESS
PB RF AGC
HD INSERT
DUB AREA
JOG
VI SW PULSE
L:CNR/ME TRAP
CN102 ⑭ REC/PB
CORRELATION DET
IC501(1/5) AM MOD
X501 13.3MHz OSC
DL501(1/2) 1H DELAY (13.3MHz)
RV501 COMB AGC
IC501(2/5) AM DET AGC DET
RV503 CLAMP LEVEL
IC501(3/5) YD CLAMP Y CLAMP HD INSERT COLOR, B/W SW REC/PB SW
CORRELATION DET
LIMITER
TP501
IC501 ㊹ PB
IC501 ⑱ EE
IC501 ② PB
Q431 FL401 250nSEC DELAY
Q401 DELAY EQ
Q402,422,423 REC PB Y BUFF
RV405 LOOP GAIN
Q429,430
TP402 EE
TP302 PB
Q414,425 REC MUTE
IC501(4/5)
Q502,D501 Y COMB CHARACTOR SW
Q501,503 DUB AREA /EDIT SW
DCD
Q903,904 PB +5V REG
Q901,902 PB MODE CONTROL
V PB MODE
PB LOGIC
PB LOGIC TO C PROCESS
IC301(4/4) SYNC SEPARATOR
COMP SYNC
IC301 ② EE
CN102 ⑬ EE
SERVO (SE-10P)
AFM/PCM AUDIO (MB-19P)

HK-5 BOARD (1/2)
EVO-9650P

(See Page 122, 125, 129)

3-5. CHROMA PROCESS BLOCK DIAGRAM

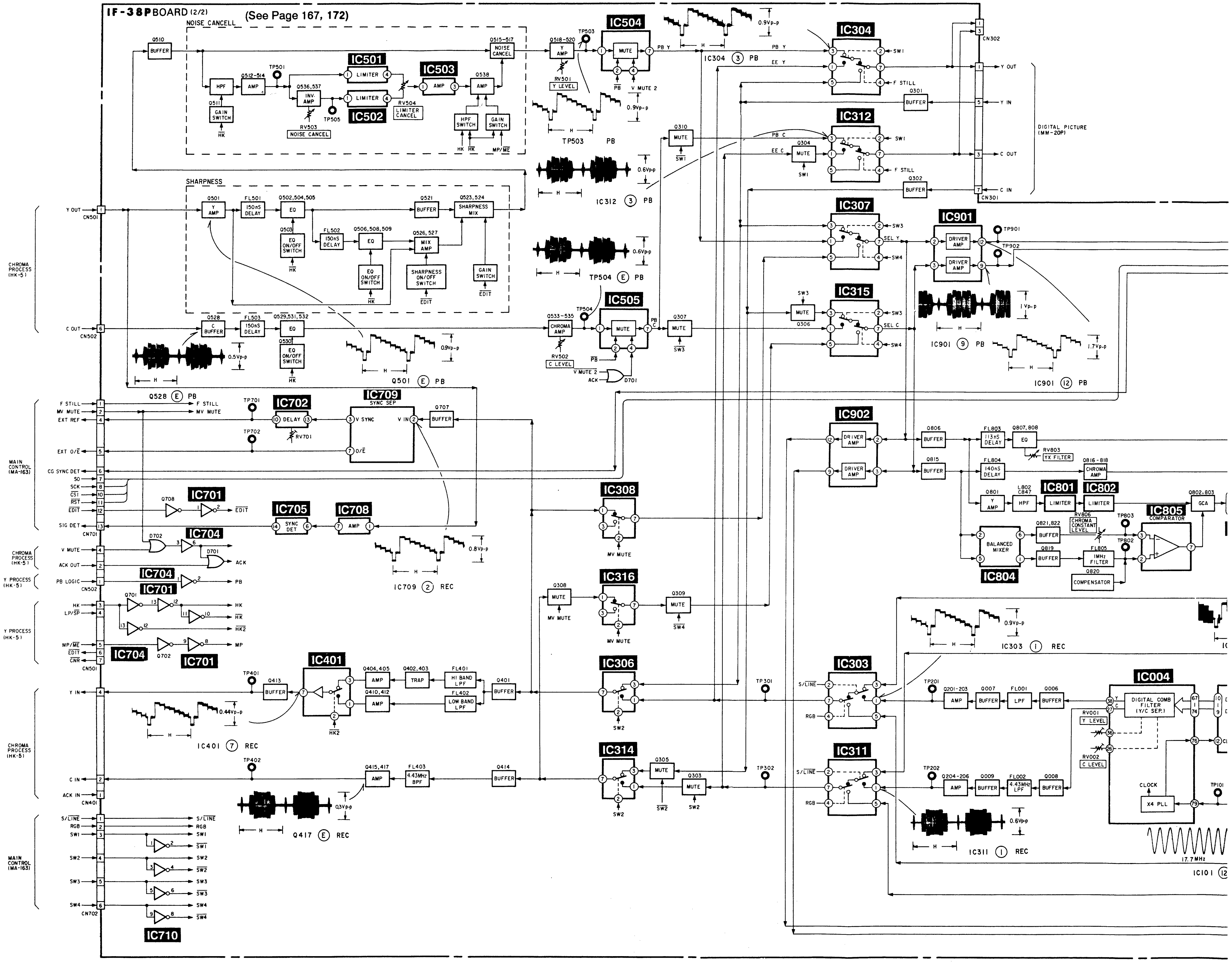

FROM Y PROCESS
REC Y (Q210-212)
Y (IC301 ⑯)
AGC Y (IC301 ㉟)
IC501(5/5)
PB CHROMA CORR COMB FILTER ATT
NON-CORR
CORR
PB
REC
DL501(2/2)
4.43 MHz 2H DERAY
C AMP
LV501 COMB FILTER
RV502 COMB FILTER
IC501 ㉟ PB
IC501 ㊷ PB
IC601 ⑫ PB
TP602 PB
IC602 ① PB
FROM Y PROCESS CORRELAION DET (IC501)
FROM Y PROCESS PB CHROMA RF (Q101)
Q129-132 PB CHROMA AMP
Q605 CHROMA BPF
IC602(1/4)
ACC AMP
ACC DET
JOG
VI SWP
Q601
DUB AREA
IC601
CHROMA EMPHASIS
PB LOGIC
T602 4.43MHz TRAP
RV602 CARRIER BALANCE
IC602(2/4)
BURST EMPHASIS BURST DE-EMPHASIS
CHROMA CONV
CARRIER INVERT
TP602
PB CHROMA
T501 BPF
Q504 BUFFER
T601 REC C AFM TRAP
Q603 REC C MUTE
Q604 BUFFER
RV201 REC CHROMA LEVEL
AFM
REC C
ATF
IC602 ㊵ REC
IC602 ㊱ EE
5.16MHz
VIDEO IN/OUT (IF-38P)
C IN
911-2 CHROMA
911-1 ACK
CN911 ② REC
IC601 ① REC
IC601 ① PB
IC602(3/4)
CHROMA INVERT
ACK AMP
PEAK HOLD
ACK DET
FF BURST ID
TP601
TP601 PB
JOG
IC801
FL802 5.17MHz BPF
FL801 3.7MHz BPF
Q612 BUFFER
Q609,610 CHROMA MUTE
4.43MHz
IC602 ⑭ EE
Q612 4.43MHz BUFFER
FROM Y DROPOUT PULSE (Q184)
SERVO (SE-10P)
101-13 REF V
IC603(1/2)
FROM Y PROCESS COMP SYNC (IC301 ②)
V SEPARATOR
HALF H KILLER
SYNTHESIS GATE
FH JOG V MUTE
IC603 ㊱ REC/PB
IC603(2/2)
SW PX1/21H PULSE GENERATOR
AFC/ AFC ID APC ID
SEL1
SEL2
fH SELECT
X602 5.9MHz OSC
1/375
1/8
732kHz
DELAY PULSE GENERATOR
BURST P
DUB AREA
PB LOGIC
IC603 ㊷ REC
X601 4.43MHz OSC
CV601 4.43MHz
IC602 (4/4)
X'TAL 90°SHIFT
REC ON
APC DET
APC EER
AFC
APC ID
CARRIER CONV
375FH VCO
RV601 VCO
Q607,608 REC ATF LPF
PB +5V
LPF
ACK
REC ATF
L;REC ATF
Q811
PB LOGIC
V MUTE
JOG VD
RV801 GCA
4.43MHz (IC602 ⑭)
FROM Y PROCESS
PB LOGIC
L;MP/H;ME
L;ME/H;MP
L;LP/H;SP
L;MPHG
DUB AREA
JOG
VI SW PULSE
L;CNR
SYSTEM CONTROL (SE-10P)
101-15 SEL 1
101-14 SEL 2
TP903
VIDEO IN/OUT (MA-163)
102-12 V MUTE
914-4
102-4 JOG VD
IC603 ㊹ EE
IC603 ㉟ EE
732kHz
IC603 ㊻ PB
IC603 ㊻ REC
IC602 ㉘ EE
6.78MHz
4.43MHz
0.28Vp-p
60mVp-p
0.56Vp-p
3.4Vp-p
0.8Vp-p
0.6Vp-p
0.37Vp-p
0.8Vp-p
1.2Vp-p
0.2Vp-p
0.4Vp-p
0.52Vp-p
5Vp-p
2.6Vp-p
0.44Vp-p

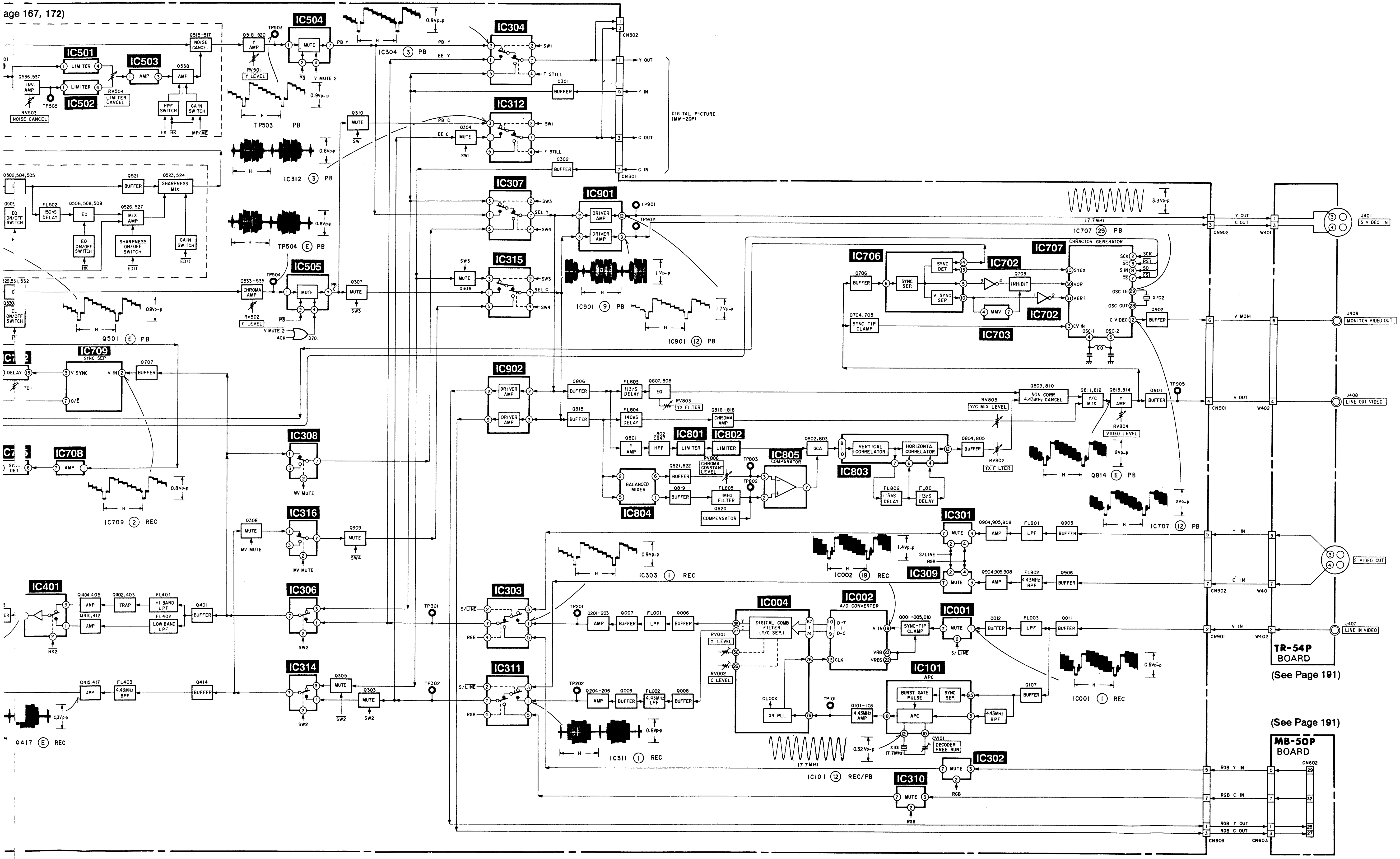

IC501 (35) PB
0.28Vp-p
PB
REC
35
34
42
37
33
IC501 (42) PB
0.56Vp-p
IC601 (12) PB
3.4Vp-p
TP602 PB
0.8Vp-p
RV602 CARRIER BALANCE
TP602
T501 BPF
Q504 BUFFER
IC601 CHROMA EMPHASIS
T602 4.43MHz TRAP
PB LOGIC
AMP
IC602(2/4)
BURST EMPHASIS BURST DE-EMPHASIS
CHROMA CONV
CARRIER INVERT
PB CHROMA
0.6Vp-p
IC602 (40) REC
0.2Vp-p
5.16MHz
IC602 (36) EE
T601 REC C AFM TRAP
Q603 REC C MUTE
Q604 BUFFER
RV201 REC CHROMA LEVEL
RV202 REC Y LEVEL
Q213,214 C/AFM/ATF MIX
AFM
REC C
ATF
L:MP/H:ME
Q215,217,218 Y/C/AFM/ATF MIX AMP
L:ME/H:MP
L:MPHG
TP201 REC
TP201
Q801 APC CORRECT SWITCH
ACK (IC602 (22))
REC AFM
101-3
AFM/PCM AUDIO (MB-19P)
REC VIDEO RF
101-1
REC/PB HEAD AMP (FR-43)
HH DELAY
102-3
SERVO (SE-10P)
IC801 JOG CHROMA PROCESS
APC CORRECTION
FL802 5.17MHz BPF
FL801 3.7MHz BPF
SEQ ID
BURST ID
SW CONTROL
1/2
FH VCO
LPF
S/H
900 SHIFT
Q609,610 CHROMA MUTE
4.43MHz (IC602) (14)
RV801 GCA
RV802 FH VCO
Q706,707 VD INSERT
V MUTE
JOG
VD
Q708-710 Y OUTPUT AMP
RV702 Y OUTPUT LEVEL
TP701
Y OUT
912-1
D821
JOG (CN102 (11))
PB +5V
DUB AREA (CN101 (16))
IC604, Q613 V BLKG PULSE
V1 SWP
V MUTE
TP801
0.5Vp-p
Q802,803 732kHz TRAP
Q804,805 CHROMA OUTPUT AMP
TP801 PB
C OUT
914-6
VIDEO IN/OUT (MA-163)
CHROMA MUTE
102-2
AFM/PCM AUDIO (MB-19P)
4Vp-p
IC801 (15) PB
ACK
914-2
4.43MHz (Q612)
917-4
REC ATF
L:REC ATF
101-5
101-7
SERVO (SE-10P)
BURST PULSE TO Y PROCESS
AGC PULSE TO Y PROCESS
EE TRAP TO Y PROCESS
IC602(3/4)
CHROMA INVERT
PEAK HOLD
ACK AMP
ACK DET
FF BURST ID
TP601
TP601 PB
JOG
0.4Vp-p
0.52Vp-p
4.43MHz
IC602 (14) EE
Q612 4.43MHz BUFFER
Q612 BUFFER
IC603 (36) REC/PB
5Vp-p
2H
IC603(2/2)
SW PX1/2 1H PULSE GENERATOR
AFC/ AFC ID APC ID
DUB AREA
DELAY PULSE GENERATOR
BURST P
PB LOGIC
732kHz
IC603 (42) REC
IC602 (4/4)
X601 4.43MHz OSC
CV601 4.43MHz
X'TAL 90° SHIFT
REC ON
CARRIER CONV
APC DET
APC EER
AFC
REC
375FH VCO
APC ID
PB +5V
RV601 VCO
Q607,608 REC ATF LPF
IC603 (44) EE
LPF
ACK
Q811
PB LOGIC
V MUTE
JOG VD
D801, D802, D804
Q606
IC603 (46) PB
2.6Vp-p
IC603 (46) REC
0.44Vp-p
6.78MHz
IC602 (28) EE

(See Page 122, 125, 129)

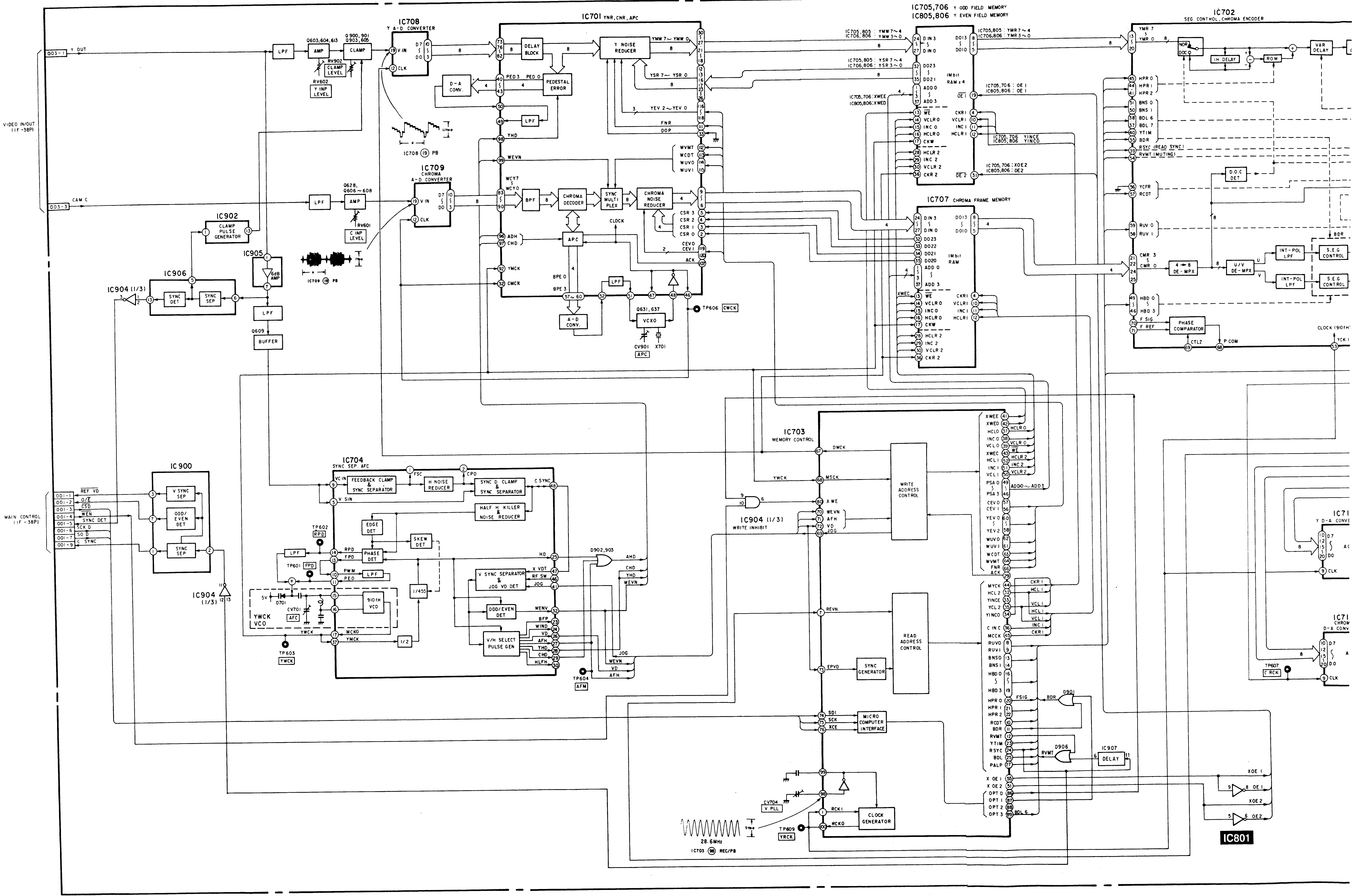
HK-5 BOARD (2/2)
EVO-9650P

3-6. VIDEO IN/OUT BLOCK DIAGRAM

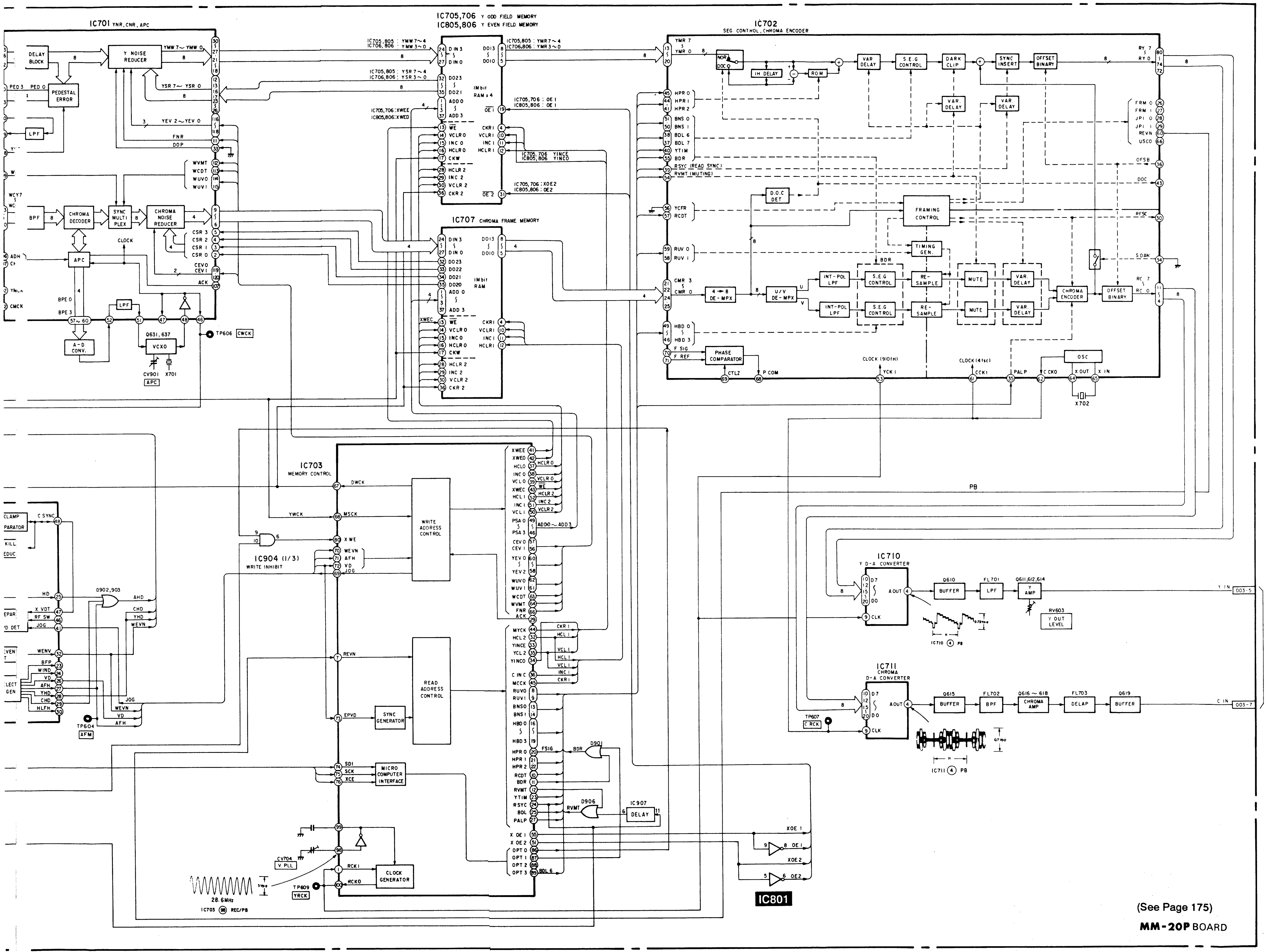

IF-38P BOARD (2/2)
(See Page 167, 172)
NOISE CANCELL
Q510 BUFFER
HPF
Q511 GAIN SWITCH
HK
Q512-514 AMP
TP501
IC501 LIMITER
IC502 LIMITER
Q536,537 INV. AMP
RV503 NOISE CANCEL
TP505
RV504 LIMITER CANCEL
IC503 AMP
Q538 AMP
HPF SWITCH
GAIN SWITCH
HK HK MP/ME
Q515-517 NOISE CANCEL
SHARPNESS
Q501 Y AMP
FL501 150nS DELAY
Q502,504,505 EQ
Q503 EQ ON/OFF SWITCH
FL502 150nS DELAY
Q506,508,509 EQ
EQ ON/OFF SWITCH
Q526,527 MIX AMP
SHARPNESS ON/OFF SWITCH
EDIT
Q521 BUFFER
Q523,524 SHARPNESS MIX
GAIN SWITCH
Q528 C BUFFER
FL503 150nS DELAY
Q529,531,532 EQ
Q530 EQ ON/OFF SWITCH
0.5Vp-p
0.9Vp-p
Q501 (E) PB
Q528 (E) PB
Y OUT
C OUT
CN501
CN502
CHROMA PROCESS (HK-5)
MAIN CONTROL (MA-163)
Y PROCESS (HK-5)
F STILL
MV MUTE
EXT REF
EXT O/E
CG SYNC DET
SO
SCK
CS1
RST
EDIT
SIG DET
CN701
V MUTE
ACK OUT
PB LOGIC
HK
LP/SP
MP/ME
CNR
Y IN
C IN
ACK IN
CN401
S/LINE
RGB
SW1
SW2
SW3
SW4
CN702
TP701
IC702 DELAY
RV701
TP702
IC709 SYNC SEP
V SYNC
V IN
O/E
Q707 BUFFER
IC701
Q708
IC705 SYNC DET
IC708 AMP
D702
IC704
D701
ACK
PB
Q701
HK2
MP
Q702
IC710
0.8Vp-p
IC709 (2) REC
IC401
TP401
Q413 BUFFER
Q404,405 AMP
Q410,412 AMP
Q402,403 TRAP
FL401 HI BAND LPF
FL402 LOW BAND LPF
Q401 BUFFER
0.44Vp-p
IC401 (7) REC
TP402
Q415,417 AMP
FL403 4.43MHz BPF
Q414 BUFFER
0.3Vp-p
Q417 (E) REC
IC504
TP503
Q518-520 Y AMP
RV501 Y LEVEL
MUTE
PB Y
V MUTE 2
0.9Vp-p
IC304 (3) PB
TP503 PB
0.6Vp-p
IC312 (3) PB
TP504 (E) PB
IC505
TP504
Q533-535 CHROMA AMP
RV502 C LEVEL
PB C
Q307 MUTE
SW3
D701
Q310 MUTE
SW1
IC304
EE Y
F STILL
Q301 BUFFER
IC312
EE C
Q304 MUTE
Q302 BUFFER
CN302
CN301
Y OUT
Y IN
C OUT
C IN
DIGITAL PICTURE (MM-20P)
IC307
SEL Y
IC315
SEL C
Q306 MUTE
IC901
DRIVER AMP
TP901
TP902
1Vp-p
1.7Vp-p
IC901 (9) PB
IC901 (12) PB
IC902
DRIVER AMP
Q806 BUFFER
Q815 BUFFER
FL803 113nS DELAY
Q807,808 EQ
RV803 YX FILTER
FL804 140nS DELAY
Q816-818 CHROMA AMP
Q801 Y AMP
L802 C847 HPF
IC801 LIMITER
IC802 LIMITER
RV806 CHROMA CONSTANT LEVEL
Q821,822 BUFFER
Q819 BUFFER
IC804 BALANCED MIXER
FL805 1MHz FILTER
Q820 COMPENSATOR
TP803
TP802
IC805 COMPARATOR
Q802,803 GCA
IC308
MV MUTE
IC316
Q308 MUTE
Q309 MUTE
SW4
IC306
SW2
IC314
Q305 MUTE
Q303 MUTE
IC303
IC311
TP301
TP302
0.9Vp-p
IC303 (1) REC
TP201
Q201-203 AMP
Q007 BUFFER
FL001 LPF
Q006 BUFFER
TP202
Q204-206 AMP
Q009 BUFFER
FL002 4.43MHz LPF
Q008 BUFFER
0.6Vp-p
IC311 (1) REC
IC004
DIGITAL COMB FILTER (Y/C SEP.)
RV001 Y LEVEL
RV002 C LEVEL
CLOCK
X4 PLL
TP101
17.7MHz
IC101


age 167, 172)
IC501 LIMITER
IC502 LIMITER
IC503 AMP
IC504 MUTE
IC304
IC312
IC307
IC315
IC505 MUTE
IC901 DRIVER AMP
IC902 DRIVER AMP
IC709 SYNC SEP
IC708 AMP
IC308
IC316
IC306
IC314
IC303
IC311
IC401
IC004 DIGITAL COMB FILTER (Y/C SEP.)
IC002 A/D CONVERTER
IC001 MUTE
IC101 APC
IC301 MUTE
IC309 MUTE
IC302 MUTE
IC310 MUTE
IC706
IC702
IC703
IC707 CHRACTOR GENERATOR
IC801 LIMITER
IC802 LIMITER
IC803
IC804 BALANCED MIXER
IC805 COMPARATOR
DIGITAL PICTURE (MM-20P)
CN301
CN302
Y OUT
Y IN
C OUT
C IN
J401 S VIDEO IN
J409 MONITOR VIDEO OUT
J408 LINE OUT VIDEO
S VIDEO OUT
J407 LINE IN VIDEO
TR-54P BOARD
(See Page 191)
MB-50P BOARD
(See Page 191)
CN602
CN603
CN901
CN902
CN903
W401
W402
RGB Y IN
RGB C IN
RGB Y OUT
RGB C OUT
V MONI
V OUT
V IN
TP503 PB
IC312 ③ PB
TP504 Ⓔ PB
Q501 Ⓔ PB
IC709 ② REC
Q417 Ⓔ REC
IC304 ③ PB
IC901 ⑨ PB
IC901 ⑫ PB
IC707 ㉙ PB
IC707 ⑫ PB
Q814 Ⓔ PB
IC303 ① REC
IC002 ⑲ REC
IC311 ① REC
IC101 ⑫ REC/PB
IC001 ① REC
17.7MHz
RV501 Y LEVEL
RV502 C LEVEL
RV503 NOISE CANCEL
RV504 LIMITER CANCEL
RV803 YX FILTER
RV804 VIDEO LEVEL
RV805 Y/C MIX LEVEL
RV802 YX FILTER
RV806 CHROMA CONSTANT LEVEL
RV001 Y LEVEL
RV002 C LEVEL
NON CORR 4.43MHz CANCEL
VERTICAL CORRELATOR
HORIZONTAL CORRELATOR
SYNC-TIP CLAMP
BURST GATE PULSE
SYNC SEP.
X4 PLL
CV101 DECODER FREE RUN

3-7. DIGITAL PICTURE BLOCK DIAGRAM



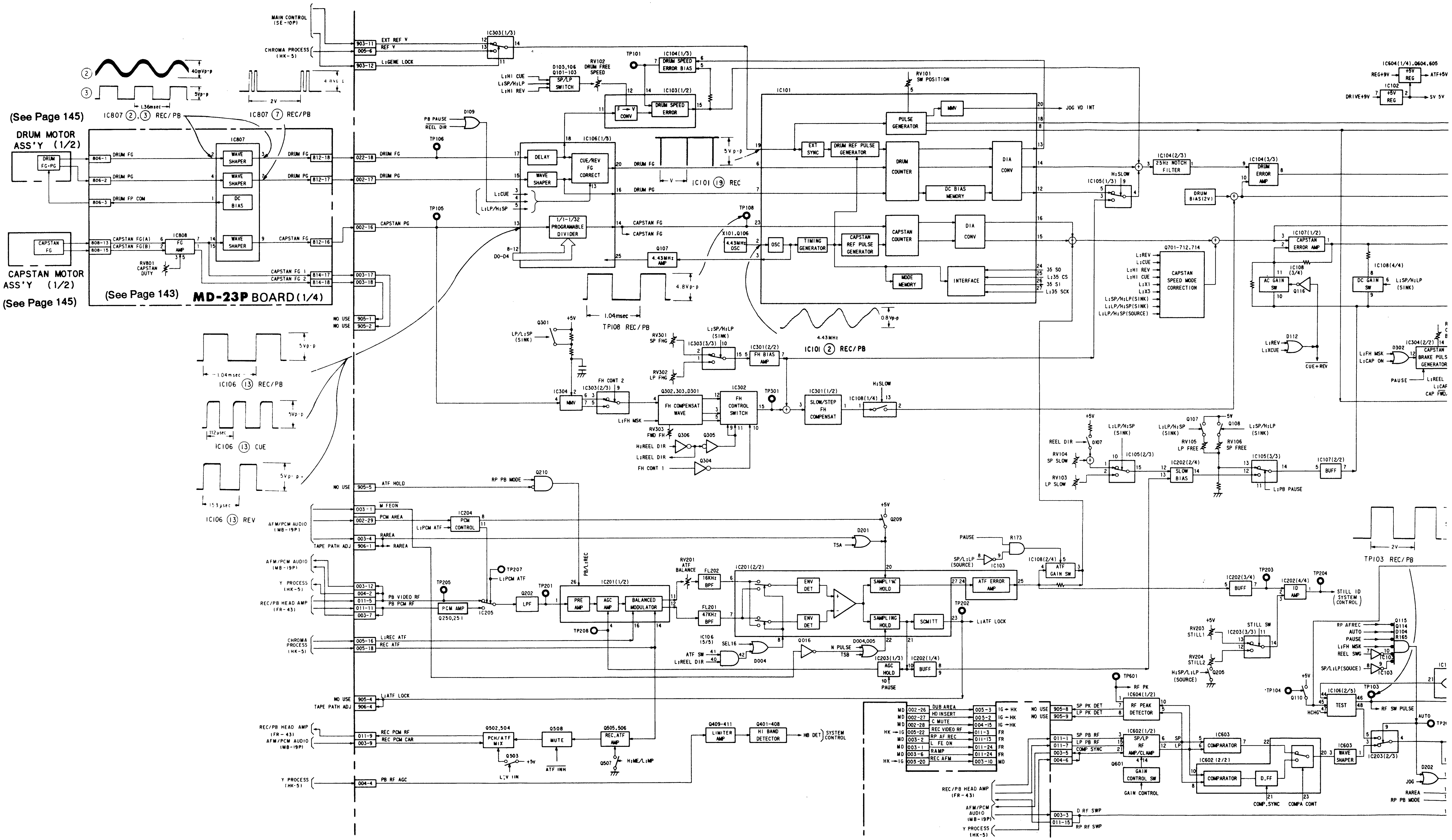
VIDEO IN/OUT (1F-38P)
MAIN CONTROL (1F-38P)
Y OUT
CAM C
IC708
Y A-D CONVERTER
IC709
CHROMA A-D CONVERTER
IC708 (19) PB
IC709 (19) PB
IC701 YNR, CNR, APC
DELAY BLOCK
Y NOISE REDUCER
PEDESTAL ERROR
D-A CONV.
LPF
AMP
CLAMP
CLAMP LEVEL
Y INP LEVEL
C INP LEVEL
RV902
RV602
RV601
Q603,604,613
Q900,901 Q903,605
Q628, Q606~608
BPF
CHROMA DECODER
SYNC MULTI PLEX
CHROMA NOISE REDUCER
APC
A-D CONV.
VCXO
Q631,637
CV901
X701
TP606 CWCK
IC902
CLAMP PULSE GENERATOR
IC905
6dB AMP
IC906
SYNC DET
SYNC SEP
IC904 (1/3)
Q609
BUFFER
IC705,706 Y ODD FIELD MEMORY
IC805,806 Y EVEN FIELD MEMORY
1Mbit RAM x 4
IC707 CHROMA FRAME MEMORY
IC702
SEG CONTROL, CHROMA ENCODER
1H DELAY
ROM
VAR DELAY
D.O.C DET
4↔8 DE-MPX
U/V DE-MPX
INT-POL LPF
S.E.G CONTROL
PHASE COMPARATOR
CLOCK (910fH)
IC900
V SYNC SEP
ODD/EVEN DET
SYNC SEP
IC704
SYNC SEP. AFC
FEEDBACK CLAMP & SYNC SEPARATOR
H NOISE REDUCER
SYNC D CLAMP & SYNC SEPARATOR
HALF H KILLER & NOISE REDUCER
EDGE DET
SKEW DET
PHASE DET
1/455
V SYNC SEPARATOR & JOG VD DET
ODD/EVEN DET
V/H SELECT PULSE GEN
910fH VCO
YWCK VCO
1/2
TP602 RPD
TP601 FPD
TP603 YWCK
TP604 AFM
CV701 AFC
D701
D902,903
IC703
MEMORY CONTROL
WRITE ADDRESS CONTROL
READ ADDRESS CONTROL
SYNC GENERATOR
MICRO COMPUTER INTERFACE
CLOCK GENERATOR
IC904 (1/3)
WRITE INHIBIT
CV704 V PLL
TP609 YRCK
28.6MHz
IC703 (98) REC/PB
D901
D906
IC907
DELAY
IC801
TP607 CRCK
IC71 Y D-A CONV
IC71 CHROM D-A CONV

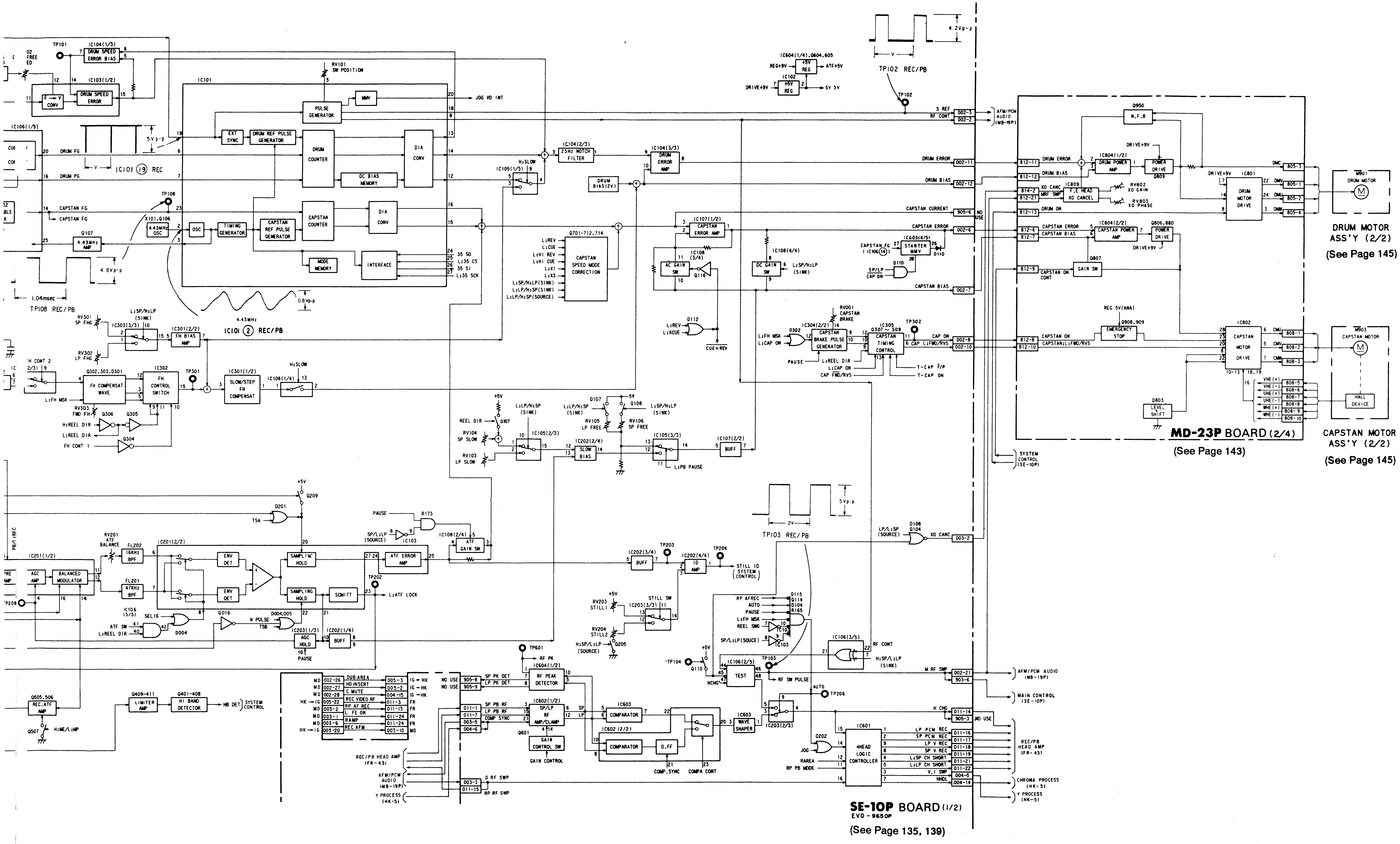

IC701 YNR, CNR, APC
DELAY BLOCK
Y NOISE REDUCER
PEDESTAL ERROR
LPF
BPF
CHROMA DECODER
SYNC MULTI PLEX
CHROMA NOISE REDUCER
APC
CLOCK
A-D CONV.
VCXO
Q631, 637
CV901 APC
X701
TP606 CWCK
IC705,706 Y ODD FIELD MEMORY
IC805,806 Y EVEN FIELD MEMORY
1M bit RAM x 4
IC707 CHROMA FRAME MEMORY
1M bit RAM
IC702 SEG CONTROL, CHROMA ENCODER
NOR
DOC
1H DELAY
ROM
VAR DELAY
S.E.G CONTROL
DARK CLIP
SYNC INSERT
OFFSET BINARY
D.O.C DET
FRAMING CONTROL
TIMING GEN.
4→8 DE-MPX
U/V DE-MPX
INT-POL LPF
RE-SAMPLE
MUTE
CHROMA ENCODER
PHASE COMPARATOR
OSC
CLOCK (910fH)
CLOCK (4fsc)
X702
IC703 MEMORY CONTROL
WRITE ADDRESS CONTROL
READ ADDRESS CONTROL
SYNC GENERATOR
MICRO COMPUTER INTERFACE
CLOCK GENERATOR
IC904 (1/3) WRITE INHIBIT
D902,903
D901
D906
IC907 DELAY
CV704 V PLL
TP609 YRCK
TP604 AFM
28.6MHz
IC703 (98) REC/PB
PB
IC710 Y D-A CONVERTER
Q610 BUFFER
FL701 LPF
Q611,612,614 Y AMP
RV603 Y OUT LEVEL
IC710 ④ PB
IC711 CHROMA D-A CONVERTER
Q615 BUFFER
FL702 BPF
Q616~618 CHROMA AMP
FL703 DELAP
Q619 BUFFER
IC711 ④ PB
TP607 CRCK
IC801
Y IN CO3-5
C IN CO3-7
VIDEO IN/OUT (1F-38P)

(See Page 175)

MM-20P BOARD

3-8. SERVO BLOCK DIAGRAM

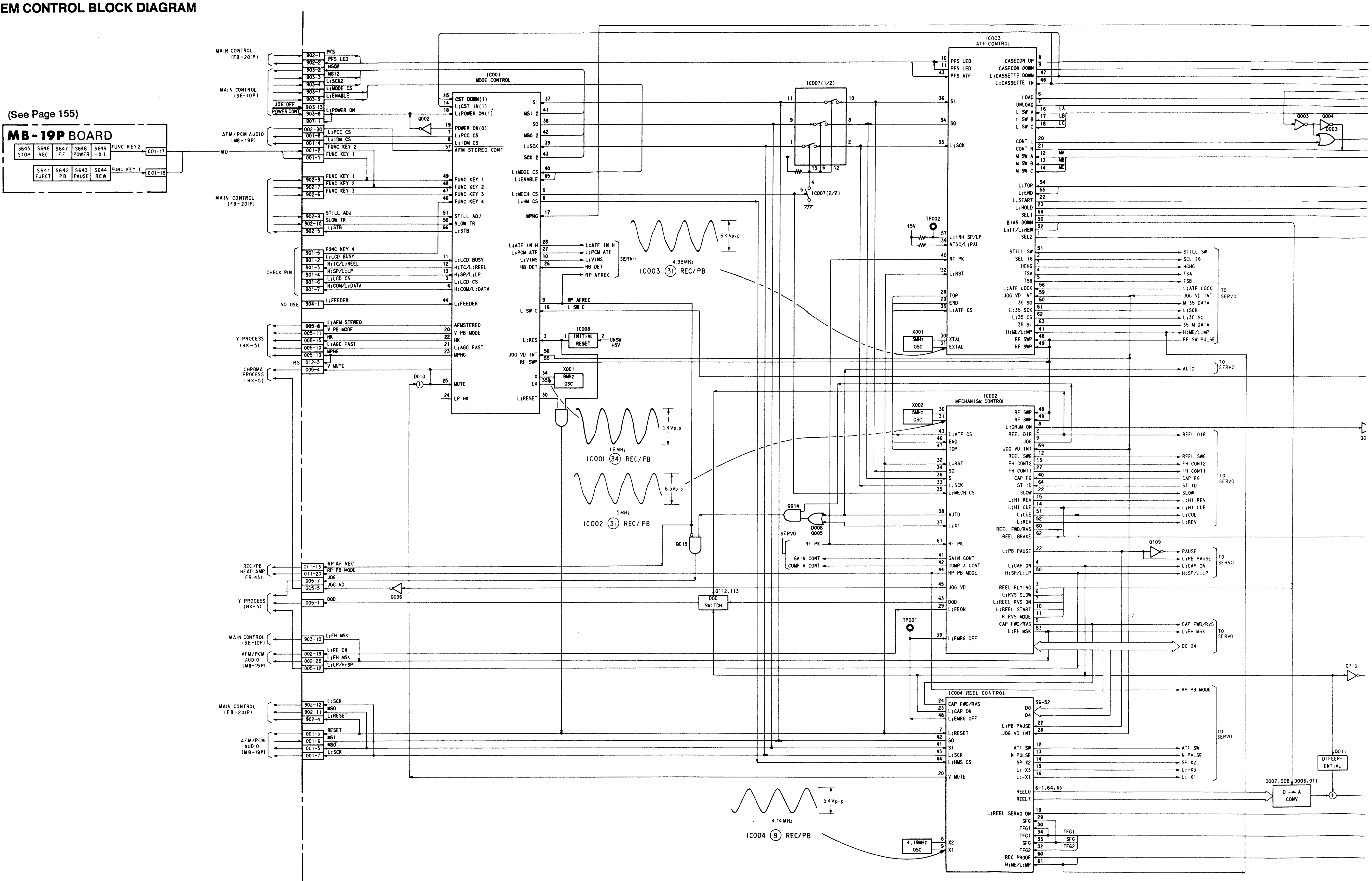

(See Page 145)
DRUM MOTOR ASS'Y (1/2)
DRUM FG·PG
CAPSTAN FG
CAPSTAN MOTOR ASS'Y (1/2)
(See Page 145)
(See Page 143)
MD-23P BOARD (1/4)
IC807
WAVE SHAPER
DC BIAS
IC808
FG AMP
RV801 CAPSTAN DUTY
IC807 ②,③ REC/PB
IC807 ⑦ REC/PB
1.36msec
2V
40mVp-p
5Vp-p
MAIN CONTROL (SE-10P)
CHROMA PROCESS (HK-5)
EXT REF V
REF V
L:GENE LOCK
DRUM FG
DRUM PG
DRUM FP COM
CAPSTAN FG(A)
CAPSTAN FG(B)
CAPSTAN PG
CAPSTAN FG 1
CAPSTAN FG 2
NO USE
IC303(1/3)
IC104(1/3)
DRUM SPEED ERROR BIAS
IC103(1/2)
DRUM SPEED ERROR
F→V CONV
SP/LP SWITCH
RV102 DRUM FREE SPEED
TP101
PB PAUSE
REEL DIR
D109
TP106
IC106(1/5)
DELAY
WAVE SHAPER
CUE/REV FG CORRECT
1/1~1/32 PROGRAMABLE DIVIDER
L:CUE
L:LP/H:SP
TP105
Q107
4.43MHz AMP
X101, Q106
4.43MHz OSC
TP108
IC101
IC101 ⑲ REC
5Vp-p
4.8Vp-p
1.04msec
TP108 REC/PB
0.8Vp-p
4.43MHz
IC101 ② REC/PB
RV101 SW POSITION
PULSE GENERATOR
MMV
EXT SYNC
DRUM REF PULSE GENERATOR
DRUM COUNTER
D/A CONV
DC BIAS MEMORY
OSC
TIMING GENERATOR
CAPSTAN REF PULSE GENERATOR
CAPSTAN COUNTER
MODE MEMORY
INTERFACE
JOG VD INT
35 SO
L:35 CS
35 SI
L:35 SCK
IC106 ⑬ REC/PB
IC106 ⑬ CUE
IC106 ⑬ REV
Q301
LP/L:SP (SINK)
IC304
MMV
IC303(2/3)
FH CONT 2
RV301 SP FHG
RV302 LP FHG
IC303(3/3)
IC301(2/2)
FH BIAS AMP
Q302,303,D301
FH COMPENSAT WAVE
IC302
FH CONTROL SWITCH
TP301
IC301(1/2)
SLOW/STEP FH COMPENSAT
IC108(1/4)
H:SLOW
RV303 FWD FH
Q306
Q305
Q304
H:REEL DIR
L:REEL DIR
FH CONT 1
L:FH MSK
IC104(2/3)
25Hz NOTCH FILTER
IC104(3/3)
DRUM ERROR AMP
DRUM BIAS(2V)
IC105(1/3)
Q701~712,714
CAPSTAN SPEED MODE CORRECTION
IC107(1/2)
CAPSTAN ERROR AMP
IC108 (3/4)
AC GAIN SW
Q116
IC108(4/4)
DC GAIN SW
L:SP/H:LP (SINK)
D112
L:REV
L:XCUE
CUE+REV
IC304(2/2)
D302
CAPSTAN BRAKE PULSE GENERATOR
L:FH MSK
L:CAP ON
PAUSE
IC604(1/4),Q604,605
REG+9V
+5V REG
ATF+5V
IC102
DRIVE+9V
5V 5V
Q107
Q108
RV105 LP FREE
RV106 SP FREE
RV104 SP SLOW
RV103 LP SLOW
REEL DIR
IC105(2/3)
IC202(2/4)
SLOW BIAS
IC105(3/3)
IC107(2/2)
BUFF
L:PB PAUSE
TP103 REC/PB
Q210
RP PB MODE
ATF HOLD
AFM/PCM AUDIO (MB-19P)
TAPE PATH ADJ
M FEON
PCM AREA
RAREA
IC204
PCM CONTROL
L:PCM ATF
Q209
D201
TSA
PAUSE
R173
SP/L:LP (SOURCE)
IC103
IC108(2/4)
ATF GAIN SW
Y PROCESS (HK-5)
REC/PB HEAD AMP (FR-43)
PB VIDEO RF
PB PCM RF
TP205
PCM AMP
Q250,251
IC205
TP207
L:PCM ATF
Q202
LPF
TP201
PB/L:REC
IC201(1/2)
PRE AMP
AGC AMP
BALANCED MODULATOR
TP208
RV201 ATF BALANCE
FL202 16KHz BPF
FL201 47KHz BPF
IC201(2/2)
ENV DET
SAMPLING HOLD
ATF ERROR AMP
SCHMITT
TP202
L:ATF LOCK
IC202(3/4)
TP203
IC202(4/4)
ID AMP
TP204
STILL ID (SYSTEM CONTROL)
IC106 (5/5)
SEL16
ATF SW
L:REEL DIR
D004
Q016
N PULSE TSB
D004,005
IC203(1/3)
AGC HOLD
IC202(1/4)
BUFF
L:REC ATF
REC ATF
L:ATF LOCK
REC PCM RF
REC PCM CAR
Q502,504
PCH/ATF MIX
Q503
L:V IN
Q508
MUTE
ATF INH
Q505,506
REC ATF AMP
Q507
H:ME/L:MP
Q409~411
LIMITER AMP
Q401~408
HI BAND DETECTOR
HB DET SYSTEM CONTROL
PB RF AGC
TP601
RF PK
IC604(1/2)
RF PEAK DETECTOR
SP PK DET
LP PK DET
IC602(1/2)
SP/LP RF AMP/CLAMP
SP PB RF
LP PB RF
COMP SYNC
Q601
GAIN CONTROL SW
GAIN CONTROL
IC603
COMPARATOR
IC602 (2/2)
D.FF
COMP.SYNC
COMPA CONT
DUB AREA
HD INSERT
C MUTE
REC VIDEO RF
RP AF REC
L FE ON
RAMP
REC AFM
D RF SWP
RP RF SWP
RV203 STILL1
RV204 STILL2
STILL SW
IC203(3/3)
H:SP/L:LP (SOURCE)
Q205
RP AFREC
AUTO
PAUSE
L:FH MSK
REEL SWG
Q115 Q114 D104 R165
SP/L:LP(SOUCE)
IC103
TP104
Q110
HCHG
IC106(2/5)
TEST
RF SW PULSE
IC203(2/3)
WAVE SHAPER
D202
JOG
RAREA
RP PB MODE



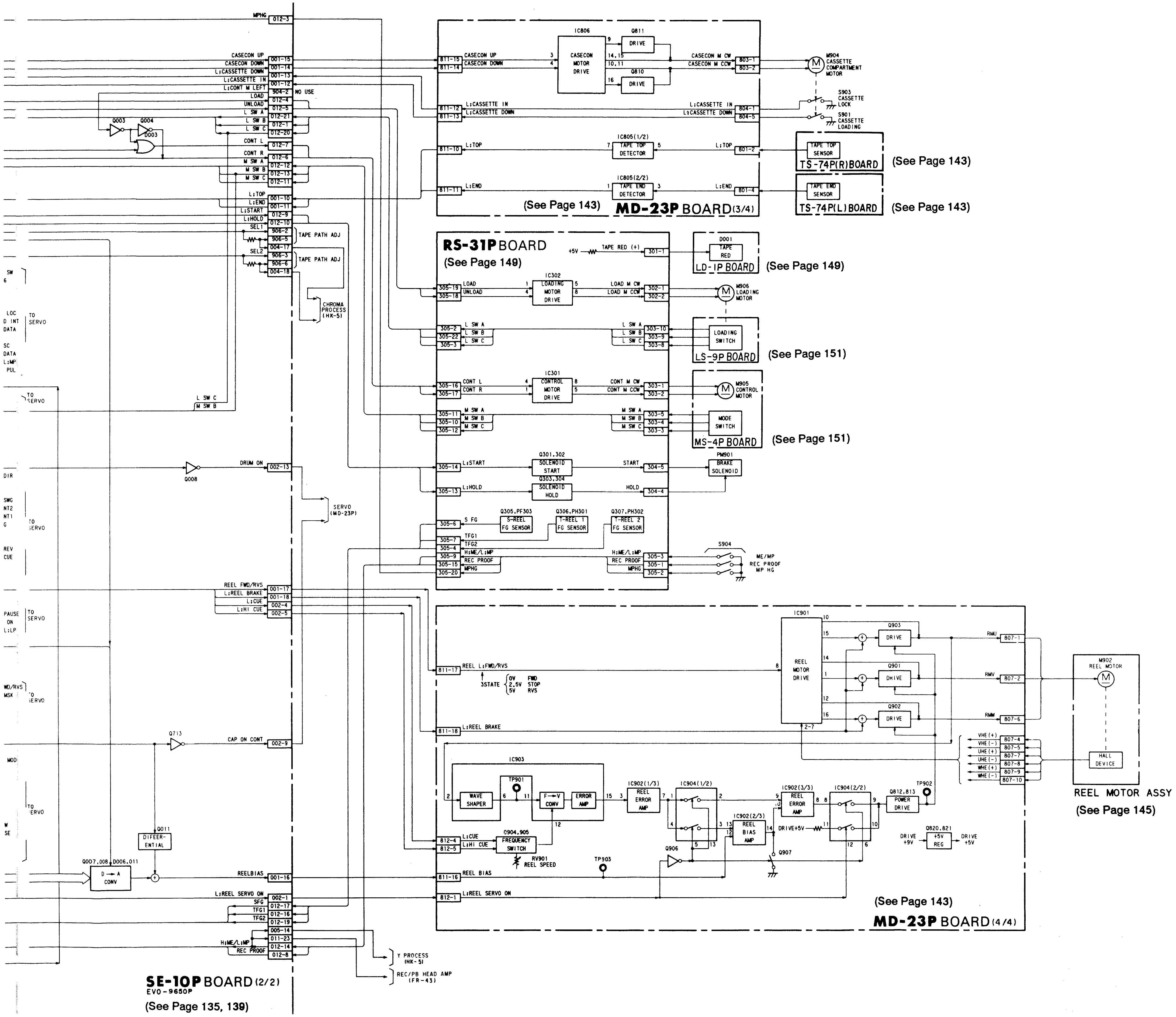
TP101
IC104(1/3) DRUM SPEED ERROR BIAS
IC103(1/2) DRUM SPEED ERROR
F→V CONV
RV101 SW POSITION
IC101
PULSE GENERATOR
MMV
JOG VD INT
EXT SYNC
DRUM REF PULSE GENERATOR
DRUM COUNTER
D/A CONV
DC BIAS MEMORY
CAPSTAN COUNTER
CAPSTAN REF PULSE GENERATOR
TIMING GENERATOR
OSC
4.43MHz OSC
X101,Q106
MODE MEMORY
INTERFACE
35 SO
L;35 CS
35 SI
L;35 SCK
IC106(1/5)
DRUM FG
DRUM PG
CAPSTAN FG
Q107 4.43MHz AMP
TP108
5Vp-p
IC101 ⑲ REC
4.8Vp-p
1.04msec
TP108 REC/PB
0.8Vp-p
4.43MHz
IC101 ② REC/PB
IC104(2/3) 25Hz NOTCH FILTER
H;SLOW
IC105(1/3)
IC104(3/3) DRUM ERROR AMP
DRUM BIAS(2V)
Q701-712,714
CAPSTAN SPEED MODE CORRECTION
L;REV
L;CUE
L;HI REV
L;HI CUE
L;X1
L;X3
L;SP/H;LP(SINK)
L;LP/H;SP(SINK)
L;LP/H;SP(SOURCE)
IC107(1/2) CAPSTAN ERROR AMP
IC108(3/4)
AC GAIN SW
Q116
IC108(4/4)
DC GAIN SW
L;SP/H;LP (SINK)
D112
L;REV
L;XCUE
CUE+REV
IC604(1/4),Q604,605
REG+9V
+5V REG
ATF+5V
IC102
DRIVE+9V
5V 5V
4.2Vp-p
TP102 REC/PB
TP102
S REF
RF CONT
AFM/PCM AUDIO (MB-19P)
DRUM ERROR
DRUM BIAS
CAPSTAN CURRENT
NO USE
CAPSTAN ERROR
CAPSTAN FG (IC106⑭)
IC605(4/5) STARTER MMV
D110
SP/LP
CAP ON
CAPSTAN BIAS
RV001 CAPSTAN BRAKE
IC304(2/2) CAPSTAN BRAKE PULSE GENERATOR
D302
L;FH MSK
L;CAP ON
PAUSE
L;REEL DIR
L;CAP ON
CAP FWD/RVS
IC305 Q307~309 CAPSTAN TIMING CONTROL
TP302
CAP ON
CAP L;FWD/RVS
T-CAP F/P
T-CAP ON
L;SP/H;LP (SINK)
RV301 SP FHG
IC303(3/3)
IC301(2/2) FH BIAS AMP
RV302 LP FHG
FH CONT 2
Q302,303,D301 FH COMPENSAT WAVE
IC302 FH CONTROL SWITCH
TP301
IC301(1/2) SLOW/STEP FH COMPENSAT
IC108(1/4)
L;FH MSK
RV303 FWD FH
Q306
Q305
H;REEL DIR
L;REEL DIR
Q304
FH CONT 1
+5V
REEL DIR
D107
RV104 SP SLOW
RV103 LP SLOW
L;LP/H;SP (SINK)
IC105(2/3)
RV105 LP FREE
Q107
Q108
5V
RV106 SP FREE
IC202(2/4) SLOW BIAS
IC105(3/3)
L;PB PAUSE
IC107(2/2) BUFF
Q209
D201
TSA
PAUSE
R173
SP/L;LP (SOURCE)
IC103
IC108(2/4) ATF GAIN SW
RV201 ATF BALANCE
FL202 16KHz BPF
FL201 47KHz BPF
IC201(2/2)
IC201(1/2)
AGC AMP
BALANCED MODULATOR
ENV DET
SAMPLING HOLD
SCMITT
ATF ERROR AMP
TP202
L;ATF LOCK
IC106 (5/5)
SEL16
ATF SW
L;REEL DIR
D004
Q016
N PULSE
D004,005
TSB
IC203(1/3) AGC HOLD
IC202(1/4) BUFF
PAUSE
TP208
IC202(3/4) BUFF
TP203
IC202(4/4) ID AMP
TP204
STILL ID (SYSTEM CONTROL)
RV203 STILL1
IC203(3/3)
STILL SW
RV204 STILL2
H;SP/L;LP (SOURCE)
Q205
5Vp-p
2V
TP103 REC/PB
LP/L;SP (SOURCE)
D108 D104
XO CANC
RP AFREC
AUTO
PAUSE
L;FH MSK
REEL SWG
SP/L;LP(SOUCE)
Q115 Q114 D104 R165
IC103
IC106(3/5)
RF CONT
H;SP/L;LP (SINK)
TP601
RF PK
IC604(1/2) RF PEAK DETECTOR
TP104
Q110
HCHG
IC106(2/5) TEST
TP103
RF SW PULSE
M RF SWP
AFM/PCM AUDIO (MB-19P)
MAIN CONTROL (SE-10P)
AUTO
TP206
IC203(2/3)
H CHG
NO USE
SP PK DET
LP PK DET
SP PB RF
LP PB RF
COMP SYNC
IC602(1/2) SP/LP RF AMP/CLAMP
Q601
GAIN CONTROL SW
GAIN CONTROL
IC603 COMPARATOR
IC602(2/2) COMPARATOR
D.FF
IC603 WAVE SHAPER
COMP.SYNC
COMPA CONT
D202
JOG
RAREA
RP PB MODE
IC601 4HEAD LOGIC CONTROLLER
LP PCM REC
SP PCM REC
LP V REC
SP V REC
L;SP CH SHORT
L;LP CH SHORT
V.1 SWP
HHDL
REC/PB HEAD AMP (FR-43)
CHROMA PROCESS (HK-5)
Y PROCESS (HK-5)
D RF SWP
RP RF SWP
REC/PB HEAD AMP (FR-43)
AFM/PCM AUDIO (MB-19P)
Y PROCESS (HK-5)
DUB AREA
HD INSERT
C MUTE
REC VIDEO RF
RP AF REC
L FE ON
RAMP
REC AFM
Q505,506 REC,ATF AMP
Q507
H;ME/L;MP
Q409-411 LIMITER AMP
Q401-408 HI BAND DETECTOR
HB DET
SYSTEM CONTROL
SYSTEM CONTROL (SE-10P)
Q950 N.F.B
DRIVE+9V
IC804(1/2) DRUM POWER AMP
POWER DRIVE Q809
IC809 F.E HEAD XO CANCEL
XO CANC
MRF SWP
RV802 XO GAIN
RV803 XO PHASE
DRUM ON
IC801 DRUM MOTOR DRIVE
DMC
DMU
DMV
DMW
M901 DRUM MOTOR
DRUM MOTOR ASS'Y (2/2)
(See Page 145)
IC804(2/2) CAPSTAN POWER AMP
Q806,880 POWER DRIVE
Q807 GAIN SW
CAPSTAN ON CONT
REG 5V(ANA)
Q908,909 EMERGENCY STOP
CAPSTAN ON
CAPSTAN;L;FWD/RVS
IC802 CAPSTAN MOTOR DRIVE
CMU
CMV
CMW
M903 CAPSTAN MOTOR
HALL DEVICE
VHE(+)
VHE(-)
UHE(+)
UHE(-)
WHE(+)
WHE(-)
D803 LEVEL SHIFT
MD-23P BOARD (2/4)
(See Page 143)
CAPSTAN MOTOR ASS'Y (2/2)
(See Page 145)
SE-10P BOARD (1/2)
EVO-9650P
(See Page 135, 139)

3-9. SYSTEM CONTROL BLOCK DIAGRAM

(See Page 155)


MB-19P BOARD
S645 STOP
S646 REC
S647 FF
S648 POWER
S649 -X1
S641 EJECT
S642 PB
S643 PAUSE
S644 REW
FUNC KEY2
FUNC KEY 1
601-17
601-18
MD
MAIN CONTROL (FB-201P)
MAIN CONTROL (SE-10P)
AFM/PCM AUDIO (MB-19P)
CHECK PIN
NO USE
Y PROCESS (HK-5)
CHROMA PROCESS (HK-5)
REC/PB HEAD AMP (FR-43)
JOG OFF
POWER CONT
IC001 MODE CONTROL
IC002 MECHANISM CONTROL
IC003 ATF CONTROL
IC004 REEL CONTROL
IC007(1/2)
IC007(2/2)
IC008 INITIAL RESET
X001 8MHz OSC
X001 5MHz OSC
X002 5MHz OSC
4.19MHz OSC
Q002
Q003
Q004
Q006
Q014
Q015
D008 Q005
D010
Q109
Q112,113 DOD SWITCH
Q713
Q011 DIFFER-ENTIAL
Q007,008,Q006,011 D→A CONV
TP001
TP002
+5V
UNSW +5V
SERVO
TO SERVO
4.98MHz
6.4Vp-p
IC003 ㉛ REC/PB
16MHz
5.4Vp-p
IC001 ㉞ REC/PB
5MHz
6.5Vp-p
IC002 ㉛ REC/PB
4.14MHz
5.4Vp-p
IC004 ⑨ REC/PB
STILL SW
SEL 16
HCHG
TSA
TSB
L:ATF LOCK
JOG VD INT
M 35 DATA
L:SCK
L:35 SC
35 M DATA
H:ME/L:MP
RF SW PULSE
AUTO
REEL DIR
REEL SWG
FH CONT2
FH CONT1
CAP FG
ST ID
SLOW
L:HI REV
L:HI CUE
L:CUE
L:REV
PAUSE
L:PB PAUSE
L:CAP ON
H:SP/L:LP
CAP FWD/RVS
L:FH MSK
D0-D4
RP PB MODE
ATF SW
N PULSE
SP X2
L:-X3
L:-X1
TFG1
SFG
TFG2

SE-10
EVO-9650P
(See Pag


MD-23P BOARD (3/4)
(See Page 143)
IC806
CASECON MOTOR DRIVE
Q811 DRIVE
Q810 DRIVE
CASECON UP
CASECON DOWN
CASECON M CW
CASECON M CCW
M904 CASSETTE COMPARTMENT MOTOR
S903 CASSETTE LOCK
S901 CASSETTE LOADING
L:CASSETTE IN
L:CASSETTE DOWN
IC805(1/2) TAPE TOP DETECTOR
IC805(2/2) TAPE END DETECTOR
L:TOP
L:END
TAPE TOP SENSOR
TS-74P(R) BOARD
(See Page 143)
TAPE END SENSOR
TS-74P(L) BOARD
(See Page 143)
RS-31P BOARD
(See Page 149)
+5V
TAPE RED (+)
D001 TAPE RED
LD-1P BOARD
(See Page 149)
IC302 LOADING MOTOR DRIVE
LOAD
UNLOAD
LOAD M CW
LOAD M CCW
M906 LOADING MOTOR
L SW A
L SW B
L SW C
LOADING SWITCH
LS-9P BOARD
(See Page 151)
IC301 CONTROL MOTOR DRIVE
CONT L
CONT R
CONT M CW
CONT M CCW
M905 CONTROL MOTOR
M SW A
M SW B
M SW C
MODE SWITCH
MS-4P BOARD
(See Page 151)
Q301,302 SOLENOID START
Q303,304 SOLENOID HOLD
L:START
L:HOLD
START
HOLD
PM901 BRAKE SOLENOID
Q305,PF303 S-REEL FG SENSOR
Q306,PH301 T-REEL 1 FG SENSOR
Q307,PH302 T-REEL 2 FG SENSOR
S FG
TFG1
TFG2
H:ME/L:MP
REC PROOF
MPHG
S904
ME/MP
REC PROOF
MP HG
IC901 REEL MOTOR DRIVE
Q903 DRIVE
Q901 DRIVE
Q902 DRIVE
RMU
RMV
RMW
REEL L:FWD/RVS
3STATE
0V FWD
2.5V STOP
5V RVS
L:REEL BRAKE
VHE(+)
VHE(-)
UHE(+)
UHE(-)
WHE(+)
WHE(-)
M902 REEL MOTOR
HALL DEVICE
REEL MOTOR ASSY
(See Page 145)
IC903
TP901
WAVE SHAPER
F→V CONV
ERROR AMP
IC902(1/3) REEL ERROR AMP
IC904(1/2)
IC902(2/3) REEL BIAS AMP
IC902(3/3) REEL ERROR AMP
IC904(2/2)
TP902
Q812,813 POWER DRIVE
DRIVE+5V
Q907
Q906
Q820,821 +5V REG
DRIVE +9V
DRIVE +5V
L:CUE
L:HI CUE
Q904,905 FREQUENCY SWITCH
RV901 REEL SPEED
TP903
REEL BIAS
L:REEL SERVO ON
MD-23P BOARD (4/4)
(See Page 143)
MPHG
CASECON UP
CASECON DOWN
L:CASSETTE DOWN
L:CASSETTE IN
L:CONT M LEFT
NO USE
LOAD
UNLOAD
Q003
Q004
D003
CONT L
CONT R
L:TOP
L:END
L:START
L:HOLD
SEL1
SEL2
TAPE PATH ADJ
TAPE PATH ADJ
CHROMA PROCESS (HK-51)
DRUM ON
Q008
SERVO (MD-23P)
REEL FWD/RVS
L:REEL BRAKE
L:CUE
L:HI CUE
Q713
CAP ON CONT
Q011 DIFFER-ENTIAL
Q007,008,D006,011 D→A CONV
REELBIAS
L:REEL SERVO ON
SFG
TFG1
TFG2
H:ME/L:MP
REC PROOF
Y PROCESS (NK-5)
REC/PB HEAD AMP (FR-43)
SE-10P BOARD (2/2)
EVO-9650P
(See Page 135, 139)
TO SERVO

3-10. SYSTEM CONTROL — VIDEO (Y PROCESS, CHROMA PROCESS, REC/PB HEAD AMP) BLOCK INTERFACE

	Mode		STOP	FF	REW	REC	REC• PAUSE	AUDIO DUB	AUDIO DUB PAUSE	PB	PB• PAUSE	×1	– ×1	×2	– ×3	CUE (×9)	REV (– ×7)	SLOW (1/5)	SLOW (–1/5)	HII CUE (×19)	HI REV (– ×17)
Signal	I/O	Pin No.																			
RP AF REC	O	Pin ⑨ of IC001	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L
JOG	O	Pin ⑨ of IC002	L	L	L	L	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H
$\overline{\times 1}$	O	Pin ㊲ of IC002	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H
RP PB MODE	O	Pin ㊹ of IC002	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
JOG VD	O	Pin ㊺ of IC002	H					$\overline{\text{VD}}$ pulse		H	$\overline{\text{VD}}$ pulse										
SP/$\overline{\text{LP}}$	O	Pin ㊿ of IC002	"H" at REC or PB in SP mode																		
DOD	O	Pin (63) of IC002	L	L	L	L	L	H	L	L	L	L	H	H	H	H	H	L	H	H	H
VIDEO MUTE	O	Pin ⑳ of IC004	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
ME/$\overline{\text{MP}}$	O	Pin ⑭ of CN012	"L" when using MP or MPHG tape																		

3-11. SYSTEM CONTROL — SERVO (CAPSTAN MOTOR) BLOCK INTERFACE

	Mode		STOP	FF	REW	REC	REC• PAUSE	AUDIO DUB	AUDIO DUB PAUSE	PB	PB• PAUSE	×1	– ×1	×2	– ×3	CUE (×9)	REV (– ×7)	SLOW (1/5)	SLOW (–1/5)	HII CUE (×19)	HI REV (– ×17)
Signal	I/O	Pin No.																			
$\overline{\text{CAP ON}}$	O	Pin ④ of IC002	H	H	H	L	H	L	H	L	H	L	L	L	L	L	L	*1	*1	L	L
CAP $\overline{\text{FWD}}$/RVS	O	Pin ⑤ of IC002	L	L	L	L	L	L	L	L	L	L	H	L	H	L	H	*1	*1	L	H
$\overline{\text{HI CUE}}$	O	Pin ⑭ of IC002	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H
$\overline{\text{HI REV}}$	O	Pin ⑮ of IC002	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L
D0 – D4 *2	O	Pins ⑯ to ⑳ of IC002	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"2"	"2"	"9"	"7"	"1"	"1"	"19"	"17"
$\overline{\text{PB PAUSE}}$	O	Pin ㉓ of IC002	H	H	H	H	H	H	L	H	L	H	H	H	H	H	H	L	L	H	H
$\overline{\text{CUE}}$	O	Pin (51) of IC002	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	L	H
$\overline{\text{REV}}$	O	Pin (52) of IC002	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	L
$\overline{-\times 1}$	O	Pin ⑯ of IC004	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H
$\overline{-\times 3}$	O	Pin ⑮ of IC004	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H

*1. Pulse output

*2. Capstan FG dividing data output

		"1"	"2"	"7"	"9"	"19"	"17"
D0	Pin ⑯ of IC002	H	L	H	H	H	H
D1	Pin ⑰ of IC002	L	H	H	L	H	L
D2	Pin ⑱ of IC002	L	L	H	L	L	L
D3	Pin ⑲ of IC002	L	L	L	H	L	L
D4	Pin ⑳ of IC002	L	L	L	L	H	H

3-12. SYSTEM CONTROL — SERVO (DRUM MOTOR) BLOCK INTERFACE

Signal	Mode I/O	Mode Pin No.	STOP	FF	REW	REC	REC• PAUSE	AUDIO DUB	AUDIO DUB PAUSE	PB	PB• PAUSE	×1	– ×1	×2	– ×3	CUE (×9)	REV (– ×7)	SLOW (1/5)	SLOW (–1/5)	HII CUE (×19)	HI REV (– ×17)
$\overline{\text{DRUM ON}}$	O	Pin ⑧ of IC002	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
FH CONT2	O	Pin ⑬ of IC002	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	*1	*1	L	L
SLOW	O	Pin ㉒ of IC002	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	L	L
FH CONT1	O	Pin ㉗ of IC002	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	*1	*1	L	L
$\overline{\text{FH MASK}}$	O	Pin (53) of IC002	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	*1	*1	H	H

*1. Pulse output

3-13. SYSTEM CONTROL — SERVO (REEL MOTOR) BLOCK INTERFACE

Signal	Mode I/O	Mode Pin No.	STOP	FF	REW	REC	REC• PAUSE	AUDIO DUB	AUDIO DUB PAUSE	PB	PB• PAUSE	×1	– ×1	×2	– ×3	CUE (×9)	REV (– ×7)	SLOW (1/5)	SLOW (–1/5)	HII CUE (×19)	HI REV (– ×17)
REEL DIR	O	Pin ② of IC002	H/L	L	H	L	L	L	L	L	H/L	L	H	L	H	L	H	L	H	L	H
REEL FLYING	O	Pin ③ of IC002	Normally "L", "H" pulse when shifting STOP → FF/REW mode																		
$\overline{\text{REEL RVS SLOW}}$	O	Pin ⑥ of IC002	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H
$\overline{\text{REEL RVS ON}}$	O	Pin ⑦ of IC002	Normally "H", "L" pulse when shifting FWD → REV mode (– ×1 or more)																		
$\overline{\text{REEL START}}$	O	Pin ⑩ of IC002	Normally "H", "L" pulse when shifting STOP → FF/REW mode																		
R RVS MODE	O	Pin ⑪ of IC002	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
REEL SWG	O	Pin ⑫ of IC002	Normally "L", "H" pulse when FWD ⇄ REV running direction changes.																		
REEL $\overline{\text{FWD}}$/RVS	O	Pin (60) of IC002	2.5V	L	H	L	2.5V	L	2.5V	L	2.5V	L	H	L	H	L	H	"H" pulse	"L" pulse	L	H
REEL BRK	O	Pin (62) of IC002	Normally "H", "L" pulse when shifting REC → REC•PAUSE mode																		
REEL 0 – 7	O	Pins ① to ⑥, (63), (64) of IC004	"59"	"87"	"87"	"59"	"44"	"59"	"44"	"59"	"48"	"59"	*2	"6F"	*2	*3	*3	*4	*4	*3	*3
$\overline{\text{REEL SERVO ON}}$	O	Pin ⑲ of IC004	H	H	H	H	H	H	H	H	H	L	H	L	H	L	H	H	H	L	H

*1. Reel bias voltage output (8 bit digital data)

		"1"	"2"	"7"	"9"	"19"
REEL 0	Pin ⑥ of IC004	L	L	H	H	H
REEL 1	Pin ⑤ of IC004	L	L	L	H	H
REEL 2	Pin ④ of IC004	H	L	L	H	H
REEL 3	Pin ③ of IC004	L	H	H	H	L
REEL 4	Pin ② of IC004	L	L	H	L	L
REEL 5	Pin ① of IC004	L	L	L	H	L
REEL 6	Pin (64) of IC004	H	H	H	H	L
REEL 7	Pin (63) of IC004	L	L	L	L	H
REEL BIAS	Pin ⑯ of CN001	1.3V	1.4V	1.7V	2.2V	2.6V

*2. Changed by SFG frequency.
*3. Changed by tape speed (SP/LP mode).
*4. Changed by synchronizing to the capstan operation.
*5. Take up tape slack by becoming "H" at shifting HI REV → STOP mode.

3-14. SYSTEM CONTROL — SERVO (ATF SERVO) BLOCK INTERFACE

	Mode		STOP	FF	REW	REC	REC• PAUSE	AUDIO DUB	AUDIO DUB PAUSE	PB	PB• PAUSE	×1	−×1	×2	−×3	CUE (×9)	REV (−×7)	SLOW (1/5)	SLOW (−1/5)	HII CUE (×19)	HI REV (−×17)
Signal	I/O	Pin No.																			
RP PB MODE	O	Pin ㊹ of IC002	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
JOG VD INT	I	Pins ㊾ of IC002, IC003	L	Pulse input																	
SEL 2	O	Pin ① of IC003	H	H	H	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
SEL 16	O	Pin ② of IC003	L	L	L	*2	L	*2	L	*2	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
TSA	O	Pin ④ of IC003	L	L	L	L	L	*2	L	*2	L	*2	*2	*2	*2	L	L	L	L	L	L
TSB	O	Pin ⑤ of IC003	L	L	L	L	L	*2	L	*2	L	*2	*2	*2	*2	L	L	L	L	L	L
M RF SW PULSE	I	Pins ㊽, ㊾ of IC003	H/L	Field sync pulse																	
SEL 1	O	Pin (64) of IC003	H	H	H	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
ATF SW	O	Pin ⑫ of IC004	L	L	L	L	L	L	*1	L	*1	L	L	L	L	L	L	*1	*1	L	L
N PULSE	O	Pin ⑬ of IC004	L	L	L	L	L	L	L	L	*1	L	*1	L	L	L	L	*1	*1	L	L

*1. Pulse output
*2. Pulse output by ATF sequence

3-15. SYSTEM CONTROL — SERVO (STILL) BLOCK INTERFACE

	Mode		STOP	FF	REW	REC	REC• PAUSE	AUDIO DUB	AUDIO DUB PAUSE	PB	PB• PAUSE	×1	−×1	×2	−×3	CUE (×9)	REV (−×7)	SLOW (1/5)	SLOW (−1/5)	HII CUE (×19)	HI REV (−×17)
Signal	I/O	Pin No.																			
AUTO	O	Pin ㊳ of IC002	Pulse input at PB pause.																		
GAIN CONT	O	Pin ㊶ of IC002																			
COMPA CONT	O	Pin ㊷ of IC002	V period pulse input (‾‾__⌐‾__)																		

3-16. SYSTEM CONTROL — SERVO (HEAD SELECTION) BLOCK INTERFACE

	Mode		STOP	FF	REW	REC	REC• PAUSE	AUDIO DUB	AUDIO DUB PAUSE	PB	PB• PAUSE	×1	−×1	×2	−×3	CUE (×9)	REV (−×7)	SLOW (1/5)	SLOW (−1/5)	HII CUE (×19)	HI REV (−×17)
Signal	I/O	Pin No.																			
AUTO	O	Pin ㊳ of IC002	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	*2	*2	H	H
GAIN CONT	O	Pin ㊶ of IC002	H	H	H	H	H	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	H	H
COMPA CONT	O	Pin ㊷ of IC002	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	*1	*1
SP/$\overline{\text{LP}}$	O	Pin ㊿ of IC002	"H" at REC or PB in SP mode.																		
HCHG	O	Pin ③ of IC003	*1	*1	*1	*1	*1	*1	*2	*1	*2	*1	*2	*2	*2	*2	*2	*2	*2	*1	*1

*1. Changed by tape speed (SP/$\overline{\text{LP}}$) SP="H", LP="L"
*2. Pulse output

3-17. SYSTEM CONTROL — SERVO (OTHERS) BLOCK INTERFACE

Mode			STOP	FF	REW	REC	REC• PAUSE	AUDIO DUB	AUDIO DUB PAUSE	PB	PB• PAUSE	×1	− ×1	×2	− ×3	CUE (×9)	REV (− ×7)	SLOW (1/5)	SLOW (−1/5)	HII CUE (×19)	HI REV (− ×17)
Signal	I/O	Pin No.																			
JOG	O	Pin ⑨ of IC002	L	L	L	L	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H
CAP FG	I	Pin ㊵ of IC002	Undefined			*1	Undefined	*1	Undefined	*1	Undefined	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
$\overline{\mathrm{M\ ATF\ LOCK}}$	I	Pin (56) of IC003		*1	*1					*2		*2	*2	*2	*2	*1	*1			*1	*1

*1. Pulse input

*2. "L" at ATF servo in phase lock

3-18. SYSTEM CONTROL — MD BLOCK INTERFACE

Mode			STOP	FF	REW	REC	REC• PAUSE	AUDIO DUB	AUDIO DUB PAUSE	PB	PB• PAUSE	×1	− ×1	×2	− ×3	CUE (×9)	REV (− ×7)	SLOW (1/5)	SLOW (−1/5)	HII CUE (×19)	HI REV (− ×17)
Signal	I/O	Pin No.																			
LOAD	O	Pin ⑥ of IC003	Normally "L", "H" at tape threading																		
UNLOAD	O	Pin ⑦ of IC003	Normally "L", "H" at tape unthreading																		
CASECON UP	O	Pin ⑧ of IC003	Normally "L", "H" at cassette unloading																		
CASECON DOWN	O	Pin ⑨ of IC003	Normally "L", "H" at cassette loading																		
MA − MC *2	I	Pins ⑫ to ⑭ of IC003	"3"	"6"	"6"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"
LA − LC *3	I	Pins ⑯ to ⑱ of IC003	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"
CONT L	O	Pin ⑳ of IC003	Normally "L", "H" pulse when shifting to mechanical mode																		
CONT R	O	Pin ㉑ of IC003																			
$\overline{\mathrm{START}}$	O	Pin ㉒ of IC003	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\mathrm{HOLD}}$	O	Pin ㉓ of IC003	H	L	L	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H
$\overline{\mathrm{CST\ IN}}$	I	Pin ㊻ of IC003	Normally "L", "H" at cassette ejection																		
$\overline{\mathrm{CC\ DOWN}}$	I	Pin ㊼ of IC003	"H" in eject mode, "L" at cassette compartment down																		
$\overline{\mathrm{TOP}}$	I	Pin (54) of IC003	Normally "H", "L" at tape top signal input } Can be detected that cassette is in when both signals are "H" and no cassette when "L".																		
$\overline{\mathrm{END}}$	I	Pin (55) of IC003	Normally "H", "L" at tape end signal input																		
SFG	I	Pins ㉙, ㉝ of IC004	Undefined	*1	*1	*1	Undefined	*1	Undefined	*1	Undefined	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
TFG 1	I	Pins ㉚, ㉞ of IC004	Undefined	*1	*1	*1	Undefined	*1	Undefined	*1	Undefined	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
TFG 2	I	Pin ㉜ of IC004	Undefined	*1	*1	*1	Undefined	*1	Undefined	*1	Undefined	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
REC PROOF	I	Pin (60) of IC004	"L" when inserting cassette possible to record																		
ME/$\overline{\mathrm{MP}}$	I	Pin (61) of IC004	"L" when using MP or MPHG tape																		

*1. Pulse accompanied with reel rotation

*2. Mode switch input

		"4"	"2"	"6"	"3"	"1"
MA	Pin ⑫ of IC003	L	L	L	H	H
MB	Pin ⑬ of IC003	L	H	H	H	L
MC	Pin ⑭ of IC003	H	L	H	L	L
Mode switch position		EJECT	LOAD/ UNLOAD	FF/ REW	STOP	FWD/ RVS

*3. Loading switch input

		"1"	"5"	"4"	"6"	"3"
LA	Pin ⑯ of IC003	H	H	L	L	H
LB	Pin ⑰ of IC003	L	L	L	H	H
LC	Pin ⑱ of IC003	L	H	H	H	L
Loading switch position		LOADING TOP	LOADING WAIT	DRUM START	T REEL START	LOADING END

3-19. MODE CONTROL MICROPROCESSER — PERIPHERAL CIRCUIT INTERFACE (IC001 (CXP80116) ON SE-10 BOARD)

Signal	I/O	Pin No.	Input/Output Level
——		1	
——		2	
$\overline{\text{LCD CS}}$	O	3	Connect to check pin, V period pulse (‾|_|‾|_|‾)
COM/$\overline{\text{DATA}}$	O	4	Connect to check pin, V period pulse (‾\/‾\/‾)
$\overline{\text{MECH CS}}$	O	5	Mechanical control chip select signal, V period pulse (‾|_|‾|_|‾)
$\overline{\text{REEL CS}}$	O	6	Reel control chip select signal, V period pulse (‾|_|‾|_|‾)
$\overline{\text{PCC CS}}$	O	7	PCM microprocesser chip select signal, V period pulse (‾|_|‾|_|‾)
$\overline{\text{IDM CS}}$	O	8	
RP AFREC	O	9	AUDIO DUB mode "H"
$\overline{\text{VINS}}$	O	10	Video insertion signal, Normally "H"
$\overline{\text{LCD BSUY}}$	I	11	Connect to check pin.
T.C /$\overline{\text{REEL}}$	O	12	
SP/$\overline{\text{LP}}$ SW	I	13	
$\overline{\text{CASETE IN}}$	I	14	"L" at cassette insertion
$\overline{\text{CCDOWN}}$	I	15	"L" at cassette compartment down
L SW C	I	16	"H" at loading switch signal input
HG SW	I	17	MPHG tape detection input, "L" at MP or ME cassette insertion
$\overline{\text{POWER ON (I)}}$	I	18	"L" at power ON
POWER ON (O)	O	19	"H" at power ON
V PB MODE	O	20	"H" in video circuit PB mode
AGC FAST	O	21	Normally "L"
HK	O	22	"H" at Hi8 tape insertion
MPHG	O	23	"H" at MPHG tape insertion
LPHK		24	Not used
MUTE (I)	I	25	Normally "L", H when shifting STOP → PB mode, etc.
HB DET	I	26	"L" when playing a tape other than it in Hi8 mode
$\overline{\text{PCMATF}}$	O	27	Normally "H"
$\overline{\text{ATF INH}}$	O	28	
$\overline{\text{AFM STEREO V CONT}}$	O	29	"L" at REC mode, Normally "H" at PB mode
$\overline{\text{RESET}}$	O	30	Reset output, "L" at resetting
MP	I	31	Microprocessor mode selector terminal → not selected, Connect to GND.
$\overline{\text{RESET (I)}}$	I	32	Reset input, "L" at resetting
Vss		33	Connect to GND.
XTAL	O	34	Crystal connector terminal for system clock oscillation, oscillates at 16 MHz.
EXTAL	I	35	
——		36	
MSI	I	37	Serial data input terminal
MSO	O	38	Not used.
$\overline{\text{SCK}}$	I	39	
$\overline{\text{MODE CS}}$	I	40	Chip select signal for IC801 (main controller) on MA-163 board, V period pulse

Signal	I/O	PIN No.	Input/Output Level
MSI2	I	41	Communication signal for IC801 (main controller) on MA-163 board, V period pulse
MSO2	O	42	
$\overline{\text{SCK2}}$	O	43	
$\overline{\text{FEEDER}}$	I	44	Not used
TEST	I	45	Fixed to "H" level, Not used
FUNC KEY4	I	46	Function key (check pin) input
FUNC KEY3	I	47	Function key input. Not used
FUNC KEY2	I	48	Function key (MB-19 board) input
FUNC KEY1	I	49	
SLOW TR	I	50	SLOW ADJ input, Voltage according to SLOW ADJ position (0 to 5 Vdc)
STILL ADJ	I	51	SLOW ADJ input, Voltage according to STILL ADJ position (0 to 5 Vdc)
AVss		52	Connect to GND
AVREF	I	53	Connect to UNSW5V
AVDD	I	54	
SW PLS	I	55	RF SW PULSE input, 2V period pulse (‾|_|‾|_)
JOG VD INT	I	56	JOG VD input of digital servo (IC101 20035), Microprocesser interrupting signal, V period pulse
$\overline{\text{AFM STEREO CONT (I)}}$	I	57	Not used. Fixed to "H" level
——		58	
——		59	
——		60	
——		61	
——		62	
——		63	
——		64	
$\overline{\text{ENABLE}}$	I	65	Communication signal for IC801 (main controller) on MA-163 board, V period pulse (‾|_|‾|_|‾)
$\overline{\text{SP STB}}$	O	66	Serial data (for lighting LEDs) transmitting strobe signal. Not used
——		67	
——		68	
NT/$\overline{\text{PAL}}$	I	69	Fixed to "L" level
$\overline{\text{INTD}}$	I	70	Fixed to "H" level
$\overline{\text{NMI}}$	I	71	
VDD		72	Connect to UNSW5V
Vss		73	Connect to GND
VPP		74	Connect to UNSW5V
——		75	
——		76	
——		77	
——		78	
——		79	
——		80	

3-20. SYSTEM CONTROL — PCM AUDIO BLOCK INTERFACE

Signal	I/O	Pin No.	Input/Output Level
$\overline{\text{FE ON}}$	O	Pin ㉙ of IC002	Normally “H”, “L” at REC mode or AUDIO DUB
FH MASK	O	Pin (53) of IC002	“L” at SLOW PB mode, “H” at other PB modes

3-21. SERVO—VIDEO (Y PROCESS, CHROMA PROCESS AND REC/PB HEAD AMP) BLOCK INTERFACE

Signal	I/O	Pin No.	Input/Output Level
LP PCM REC	O	Pin ① of IC601	Normally “L”, V period “H” pulse at REC in LP mode (including AUDIO DUB), V period, “H” pulse
SP PCM REC	O	Pin ② of IC601	Normally “L”, V period “H” pulse at REC in SP mode (including AUDIO DUB), V period, “H” pulse
VI SWP	O	Pin ③ of IC601	2V period 50% duty pulse
$\overline{\text{SP CH SHORT}}$	O	Pin ④ of IC601	Normally “H”, “L” at REC/PB in LP mode
$\overline{\text{LP CH SHORT}}$	O	Pin ⑤ of IC601	Normally “L”, “H” at REC/PB in LP mode
HH DL	O	Pin ⑦ of IC601	Normally “H”, pulse at varying-speed PB
SP VIDEO REC	O	Pin ⑧ of IC601	Normally “L”, “H” at REC in SP mode
LP VIDEO REC	O	Pin ⑨ of IC601	Normally “L”, “H” at REC in LP mode
COMP SYNC	I	Pin ⑥ of CN004	Positive polarity composite sync signal
REF V	I	Pin ⑥ of CN005	V period “L” pulse
H CHG	O	Pin ⑭ of CN011	“H” at REC/PB in SP mode, “L” at REC/PB in LP mode, pulse at varying-speed PB

3-22. PCM AUDIO — VIDEO (Y PROCESS, CHROMA PROCESS AND REC/PB HEAD AMP) BLOCK INTERFACE

Signal	I/O	Pin No.	Input/Output Level
M FE ON	O	Pin ① of IC601	Normally “H”, “L” at REC mode, 2V period “L” pulse at AUDIO DUB
RP AFTER REC	O	Pin (60) of IC601	Normally “L”, “H” at AUDIO DUB
D RF SWP (RP RF SWP)	O	Pin ㊽ on PD-19 board	2V period 50% duty pulse
RAMP	O	Pin ㊻ on PD-19 board	Normally “L”, “H” during AUDIO DUB writing, (V period “H” pulse)
COMP SYNC	O	Pin (53) on PD-19 board	Positive polarity composite sync signal
C MUTE	O	Pin (54) on PD-19 board	Normally “L”, “H” during AUDIO DUB writing, (V period “H” pulse)
HD INSERT	O	Pin (55) on PD-19 board	Normally “L”, H period “H” pulse during AUDIO DUB writing (H period “H” pulse)
AFTER REC MASK	I	Pin (56) on PD-19 board	Normally “L”, “H” during AUDIO DUB writing (V period “H” pulse)

3-23. PCM AUDIO — SERVO BLOCK INTERFACE

Signal	I/O	Pin No.	Input/Output Level
$\overline{\text{M FE ON}}$	O	Pin ① of IC601	Normally “H”, “L” at REC mode, 2V period “L” pulse when AUDIO DUB
RF CONT SWP	I	Pins ㉙, ㉚ of IC601	2V period 50% duty pulse
MS REF	I	Pin ⑭ on PD-19 board	V period “H” pulse
R AREA	O	Pin ㊼ on PD-19 board	Normally “L”, V period “H” pulse at REC mode (including AUDIO DUB)
D RF SWP	O	Pin ㊽ on PD-19 board	2V period 50% duty pulse
PCM AREA	O	Pin ㊾ on PD-19 board	V period “H” pulse
M RF SWP	I	Pin (61) on PD-19 board	2V period 50% duty pulse

3-24. PCM AUDIO — AUDIO IN/OUT BLOCK INTERFACE

Signal	I/O	Pin No.	Input/Output Level
MONO/$\overline{\text{STE}}$ OUT	O	Pin ⑪ IC601	Normally “L”, “H” when playing back monaural PCM audio signal
JOG AU MUTE	O	Pin ⑰ IC601	Normally “L”, “H” at varying-speed PB
MONO/$\overline{\text{STE}}$ IN	I	Pin ㊴ IC601	Normally “L”, “H” at microphone input or when tape played back by player is recorded in monaural PCM sound
PCM MUTE	O	Pin ㊾ IC601	“H” when PCM sound is not played back and when shifting to SLOW, STILL mode
AFM REC/$\overline{\text{PB}}$	O	Pin (51) IC601	Normally “H”, “L” at PB mode (including varying-speed PB)
AFM MUTE	O	Pin (55) IC601	Normally “L”, “H” at varying-speed PB and at mode shifting
$\overline{\text{AUEE}}$ PORT	O	Pin (56) IC601	Normally “L”, “H” at PB mode (including varying-speed PB)
MODE	O	Pin ㉙ on PD-19 board	

3-25. MAIN CONTROL — MICROPROCESSOR PIN FUNCTIONS
(IC801 OF MA-163 BOARD, µPD7813GC-AB8)

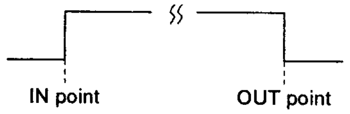
Pin No.	Port Name	I/O	Signal Name	Function
1	$\overline{\text{RD}}$	O	←	External memory read strobe. Pulse train.
2	P63	O	$\overline{\text{START}}$	Cleaning roller control. "L" when cleaning roller is operating.
3	P62	O	$\overline{\text{HOLD}}$	
4	P61	O	RS INHI	Control signal to option connector (CN602 of MB-50 board). Pulse synchronizing with M RF SWP when REC/PB. "H" when stop.
5	P60	O	F-STILL	Video signal switching. "H" when FREEZE.
6	$\overline{\text{RESET}}$	I	$\overline{\text{RESET}}$	System reset of CPU. Normally "H".
7	X2	–	X2	Crystal oscillator. 11.0592 MHz
8	X1	I	X1	
9	Vss	I	Vss	GND
10	A15	O	A15	Address bus (Upper)
11	A14	O	A14	
12	A13	O	A13	
13	A12	O	A12	
14	A11	O	A11	
15	A10	O	A10	
16	A9	O	A9	
17	A8	O	A8	
18	AD7	I/O	AD7	Data bus and address bus (Lower)
19	AD6	I/O	AD6	
20	AD5	I/O	AD5	
21	AD4	I/O	AD4	
22	AD3	I/O	AD3	
23	AD2	I/O	AD2	
24	Vss	I	Vss	GND
25	AD1	I/O	AD1	Data bus and address bus (Lower)
26	AD0	I/O	AD0	
27	ASTB	O	ASTB	Address strobe signal
28	NMI	I	NMI	PULL UP
29	INTP 0	I	INTP 0	$\overline{\text{VD}}$, V period "L" pulse.
30	P22	I	Y FR DET	Detection signal for adjusting Y FRAME (O/E). "L" when the FRAME (O/E) is correct.
31	P23	I	DSR	RS232C interface
32	P24	I		
33	INTP 4	I	$\overline{\text{ENABLE}}$	Communication request signal from mode controller (IC001 of SE-10 board). V period "L" pulse when REC/PB.
34	P26	I	$\overline{\text{POWER ON}}$	Power supply (DIG5V) sense signal. L=POWER ON, H=STANDBY.
35	SI	I	SI	Serial data input (clock sync format). V period pulse train when REC/PB.
36	RxD	I	RxD	RS232C interface
37	TxD	O	TxD	Serial clock output (clock sync format). V period pulse train when REC/PB.
38	SCK	O	SCK	
39	SO	O	SO	Serial data output (clock sync format). V period pulse train when REC/PB.
40	$\overline{\text{EA}}$	I	$\overline{\text{EA}}$	GND
41	VDD	I	VDD	Power supply (UNSW5V)
42	AVss	I	AVss	A/D port GND
43	AVREF	I	AVREF	A/D port power supply (UNSW5V)
44	AN5	I	V INPUT SEL	S VIDEO/VIDEO/OPTION switching input (A/D port) S VIDEO: 2.1V, VIDEO: 3.1V, OPTION: 1.1V
45	AN4	I	DATA SCREEN	TC/SCREEN OFF/MENU switching input (A/D port) TC: 1.1V, SCREEN OFF: 2.1V, MENU 3.1V
46	AN3	I	FUNC 4	FUNCTION key input (A/D port) DATA: 2.1V, SET: 3.1V, FRAME MEMORY SELECT: 4.1V, No-input: 5.3V
47	AN2	I	FUNC 3	FUNCTION key input (A/D port) EJECT: 1.1V, PLAY: 2.1V, PAUSE: 3.1V, REW: 4.1V, No-input: 5.3V
48	AN1	I	FUNC 2	FUNCTION key input (A/D port) STOP: 1.1V, REC: 2.1V, FF: 3.1V, MENU: 4.1V, No-input: 5.3V
49	AN0	I	FUNC 1	FUNCTION key input (A/D port) POWER: 1.1V, AUDIO DUBBING: 4.1V, No-input: 5.3V
50	P34	O	PROTO COL SEL 1	Protocol switching signal to option connector (CN602 of MB-50 board).
51	P35	O	PROTO COL SEL 2	
52	P36	O	JOG VD OFF	JOG VD insertion OFF control. Normally "L". "H" only when VD insertion during variable speed playback is not performed.
53	P37	O	$\overline{\text{OPT CS}}$	Option communication $\overline{\text{CS}}$ signal. V period "L" pulse when REC/PB.
54	P00	O	$\overline{\text{RST}}$	Reset output signal when POWER ON. "L" when reset.
55	P01	O	$\overline{\text{LED EN}}$	$\overline{\text{STB}}$ signal of serial/parallel conversion IC (LED drive, IC801 of FB-201 board). V period "L" pulse when REC/PB.
56	P02	O	$\overline{\text{MODE CS}}$	$\overline{\text{CS}}$ signal to mode controller (IC001 of SE-10 board). V period "L" pulse when REC/PB.
57	P03	O	$\overline{\text{CE}}$	$\overline{\text{CE}}$ signal of nonvolatile memory (IC806 of MA-163 board). 115 msec. width "L" pulse when PRESET MENU set button is pressed.
58	P04	O	$\overline{\text{CSC}}$	$\overline{\text{CS}}$ signal to character generator IC (IC707 of IF-38 board). V period "L" pulse train when REC/PB.
59	P05	O	$\overline{\text{COM EN}}$	Communication control signal of nonvolatile memory. 0.4 msec. width "L" pulse when PRESET MENU set button is pressed.
60	P06	O	$\overline{\text{JOG CONT}}$	$\overline{\text{CS}}$ signal to JOG microprocessor of control unit. V period "L" pulse when REC/PB.
61	P07	O	$\overline{\text{FM CONT}}$	$\overline{\text{CS}}$ signal to frame memory (MM-20 board). V period "L" pulse when REC/PB.
62	P67	I	PCM SEL	AUDIO output select signal.
63	P66	I	STD SEL	
64	$\overline{\text{WR}}$	O	$\overline{\text{WR}}$	External memory write strobe. "L" pulse train.

AUDIO OUTPUT SELECT	PCM SEL	STD SEL
PCM	H	L
MIX	H	H
AFM	L	H

3-26. MAIN CONTROL — MICROPROCESSOR EXPANSION OUTPUT PORT 1 PIN FUNCTIONS (IC812 OF MA-163 BOARD)

<table>
<tr><th>Pin No.</th><th>I/O</th><th>Signal Name</th><th>Function</th></tr>
<tr><td>2</td><td>O</td><td>MV MUTE</td><td>MUTE control of video signal
H=MUTE ON, L=MUTE OFF</td></tr>
<tr><td>5</td><td>O</td><td>RGB</td><td rowspan="2">Input switching of video signal<table><tr><th>Input \ Signal</th><th>$\overline{\text{RGB}}$</th><th>S/$\overline{\text{LINE}}$</th></tr><tr><td>Option input</td><td>H</td><td>H</td></tr><tr><td>S VIDEO input</td><td>L</td><td>H</td></tr><tr><td>Video input</td><td>L</td><td>L</td></tr></table></td></tr>
<tr><td>6</td><td>O</td><td>S/$\overline{\text{LINE}}$</td></tr>
<tr><td>9</td><td>O</td><td>$\overline{\text{EDIT}}$</td><td>Switching control of EDIT (dubbing) mode
H=NORMAL mode, L=EDIT mode
The frequency characteristics during playback are flattened and sharpness becomes OFF when $\overline{\text{EDIT}}$=L.</td></tr>
<tr><td>12</td><td>O</td><td>PB A MUTE</td><td>MUTE control of playback AUDIO
H=MUTE ON, L=MUTE OFF</td></tr>
<tr><td>15</td><td>O</td><td>A MUTE</td><td>MUTE control of LINE OUT AUDIO
H=MUTE ON, L=MUTE OFF</td></tr>
<tr><td>16</td><td>O</td><td>STD EE</td><td>EE control of AFM AUDIO
CH=EE ON, L=EE OFF (playback output)</td></tr>
<tr><td>19</td><td>O</td><td>PCM EE</td><td>EE control of PCM AUDIO
H=EE ON, L=EE OFF (playback output)</td></tr>
</table>

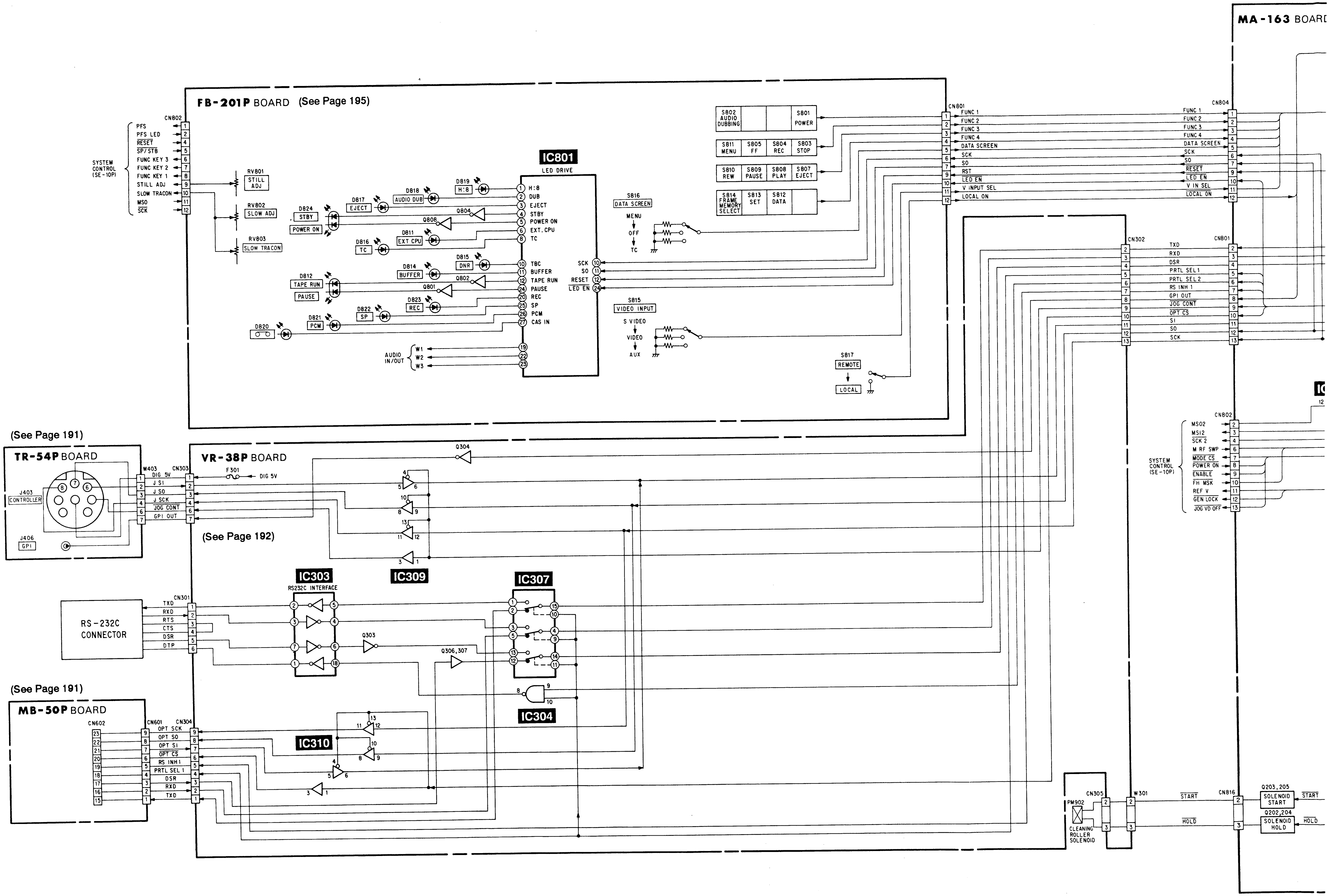
3-27. MAIN CONTROL — MICROPROCESSOR EXPANSION OUTPUT PORT 2 PIN FUNCTIONS (IC813 OF MA-163 BOARD)

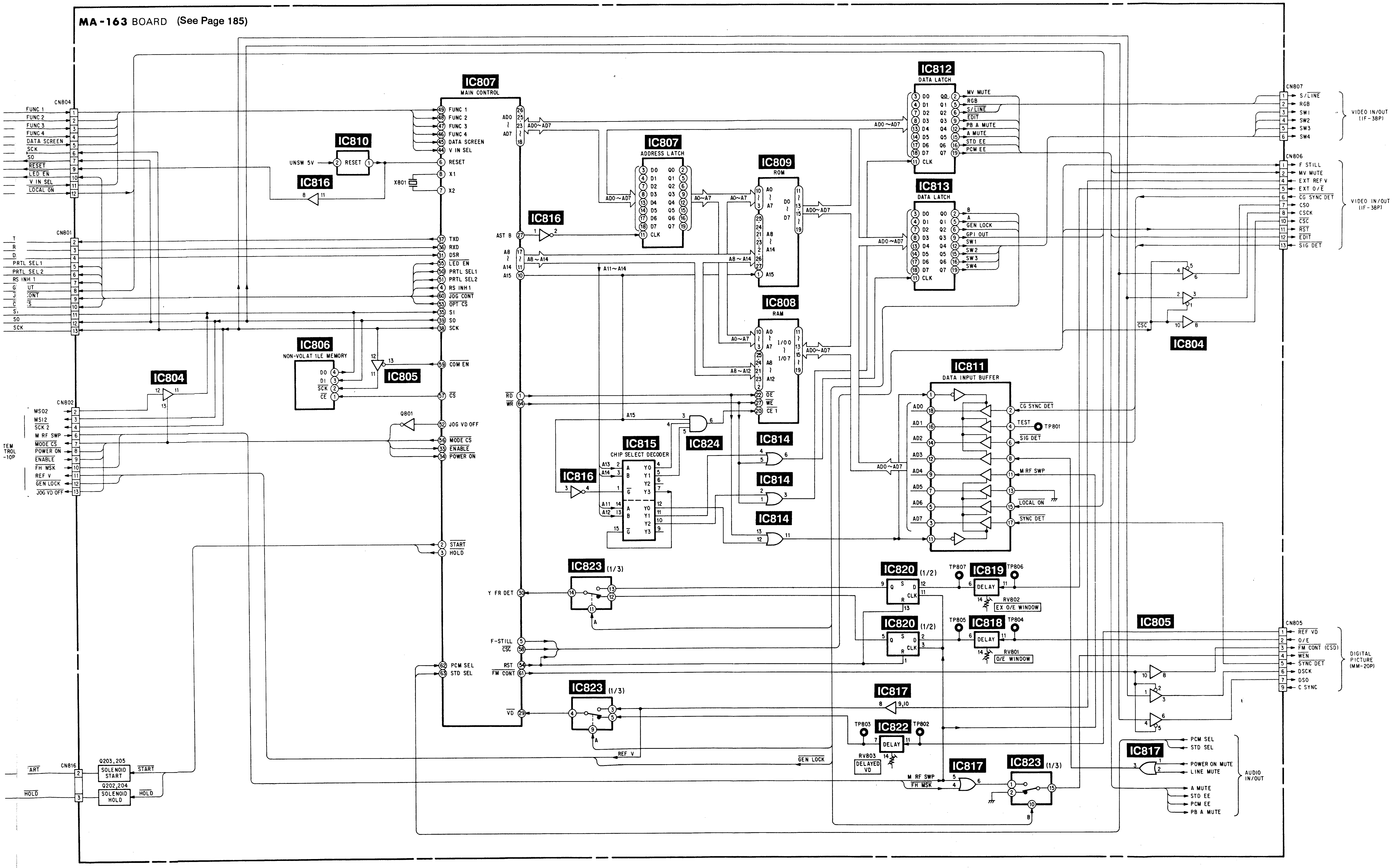
<table>
<tr><th>Pin No.</th><th>I/O</th><th>Signal Name</th><th>Function</th></tr>
<tr><td>2</td><td>O</td><td>M SLOW</td><td>$\overline{\text{WEN}}$ signal switching of digital memory (frame memory)
H=$\overline{\text{WEN}}$ signal becomes timing pulse. (OR signal of MRF SWP and $\overline{\text{FM MSK}}$)
L=$\overline{\text{WEN}}$ signal is continuously "L".</td></tr>
<tr><td>5</td><td>O</td><td>VD SEL</td><td>REF. VD and O/E switching control
CH=REF. VD and O/E of external input
L=REF. VD and O/E of frame memory (read side)</td></tr>
<tr><td>6</td><td>O</td><td>$\overline{\text{GEN LOCK}}$</td><td>VD lock control to core deck
H=VD lock OFF, L=VD lock ON</td></tr>
<tr><td>9</td><td>O</td><td>GPI OUT</td><td>GPI pulse output
The following pulse is output during edit operation.
 </td></tr>
<tr><td>12</td><td>O</td><td>SW 1</td><td rowspan="3">Video system analog switch switching control<table><tr><th>Signal \ Mode</th><th>DNR mode</th><th>Buffer mode</th><th>OFF mode</th></tr><tr><td>SW 1</td><td>H</td><td>L</td><td>H</td></tr><tr><td>SW 2</td><td>L</td><td>H</td><td>L</td></tr><tr><td>SW 3</td><td>H</td><td>L</td><td>L</td></tr></table>The switches should be set according to the frame memory mode as the table above.</td></tr>
<tr><td>15</td><td>O</td><td>SW 2</td></tr>
<tr><td>16</td><td>O</td><td>SW 3</td></tr>
<tr><td>19</td><td>O</td><td>SW 4</td><td>Video system EE control
H=EE ON, L=EE OFF (playback output)</td></tr>
</table>

3-28. MAIN CONTROL — MICROPROCESSOR EXPANSION INPUT PORT PIN FUNCTIONS (IC811 OF MA-163 BOARD)

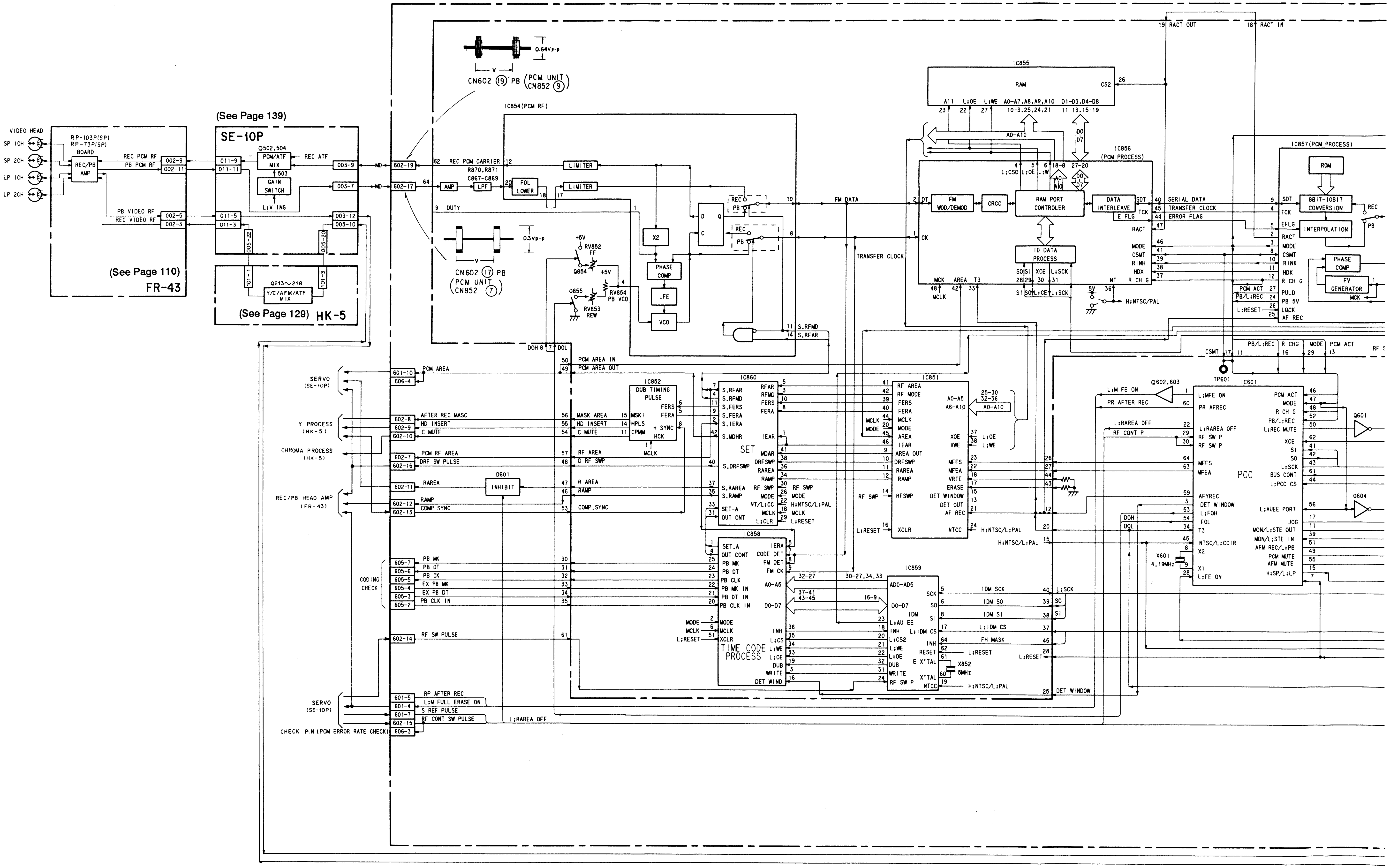
Pin No.	I/O	Signal Name	Function
2	I	$\overline{\text{CG SYNC DET}}$	Signal presence/absence discrimination of input video to character generator IC H=No signal, L=Signal Character generator display position is switched according to presence/absence of signal. (V direction)
4	I	$\overline{\text{TEST}}$	TEST mode switching input H=NORMAL mode, L=TEST mode When reset is started in the "$\overline{\text{TEST}}$=L" condition, the test program for basic adjustments starts up.
6	I	$\overline{\text{SIG DET}}$	Playback video signal presence/absence discrimination of core deck H=No signal, L=Signal
8	I	MUTE DET	AUDIO MUTE discrimination signal H=MUTE ON, L=MUTE OFF
11	I	M RF SWP	PF SWP input of core deck
13	I	PAL/$\overline{\text{NTSC}}$	PAL/NTSC switching input (for microprocessor) H=PAL, L=NTSC
15	I	$\overline{\text{LOCAL ON}}$	REMOTE/LOCAL switching input H=REMOTE, L=LOCAL
17	I	$\overline{\text{SYNC DET}}$	Input video signal presence/absence discrimination to digital memory (frame memory) H=No signal, L=Signal

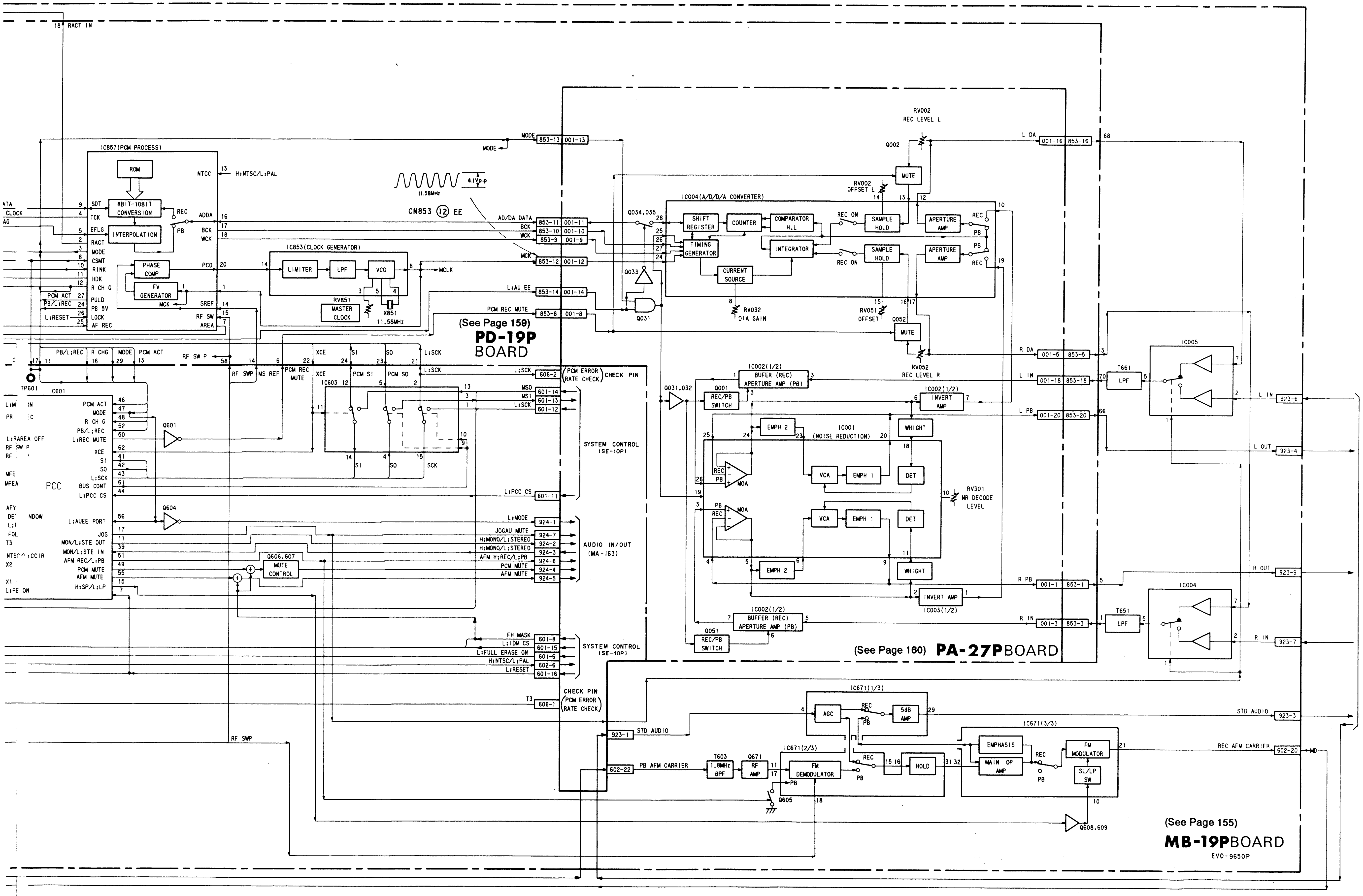
3-29. MAIN CONTROL BLOCK DIAGRAM


FB-201P BOARD (See Page 195)
CN802
SYSTEM CONTROL (SE-10P)
PFS
PFS LED
RESET
SP/STB
FUNC KEY 3
FUNC KEY 2
FUNC KEY 1
STILL ADJ
SLOW TRACON
MSO
SCK
RV801 STILL ADJ
RV802 SLOW ADJ
RV803 SLOW TRACON
D824 STBY
POWER ON
D817 EJECT
D818 AUDIO DUB
D819 H:8
Q804
Q808
D811 EXT CPU
D816 TC
D815 DNR
D814 BUFFER
Q802
Q801
D812 TAPE RUN
PAUSE
D823 REC
D822 SP
D821 PCM
D820
IC801
LED DRIVE
H:8
DUB
EJECT
STBY
POWER ON
EXT. CPU
TC
TBC
BUFFER
TAPE RUN
PAUSE
REC
SP
PCM
CAS IN
SCK
SO
RESET
LED EN
AUDIO IN/OUT
W1
W2
W3
S802 AUDIO DUBBING
S801 POWER
S811 MENU
S805 FF
S804 REC
S803 STOP
S810 REW
S809 PAUSE
S808 PLAY
S807 EJECT
S814 FRAME MEMORY SELECT
S813 SET
S812 DATA
S816 DATA SCREEN
MENU
OFF
TC
S815 VIDEO INPUT
S VIDEO
VIDEO
AUX
S817 REMOTE
LOCAL
CN801
FUNC 1
FUNC 2
FUNC 3
FUNC 4
DATA SCREEN
SCK
SO
RST
LED EN
V INPUT SEL
LOCAL ON
MA-163 BOARD
CN804
FUNC 1
FUNC 2
FUNC 3
FUNC 4
DATA SCREEN
SCK
SO
RESET
LED EN
V IN SEL
LOCAL ON
CN302
CN801
TXD
RXD
DSR
PRTL SEL 1
PRTL SEL 2
RS INH 1
GPI OUT
JOG CONT
OPT CS
SI
SO
SCK
CN802
SYSTEM CONTROL (SE-10P)
MS02
MSI2
SCK 2
M RF SWP
MODE CS
POWER ON
ENABLE
FH MSK
REF V
GEN LOCK
JOG VD OFF
(See Page 191)
TR-54P BOARD
J403 CONTROLLER
J406 GPI
W403
CN303
DIG 5V
J SI
J SO
J SCK
JOG CONT
GPI OUT
VR-38P BOARD
F301
DIG 5V
Q304
(See Page 192)
IC303
RS232C INTERFACE
IC309
IC307
RS-232C CONNECTOR
CN301
TXD
RXD
RTS
CTS
DSR
DTP
Q303
Q306, 307
IC304
(See Page 191)
MB-50P BOARD
CN602
CN601
CN304
OPT SCK
OPT SO
OPT SI
OPT CS
RS INH 1
PRTL SEL 1
DSR
RXD
TXD
IC310
PM902
CLEANING ROLLER SOLENOID
CN305
W301
START
HOLD
CN816
Q203, 205
SOLENOID START
Q202, 204
SOLENOID HOLD
START
HOLD

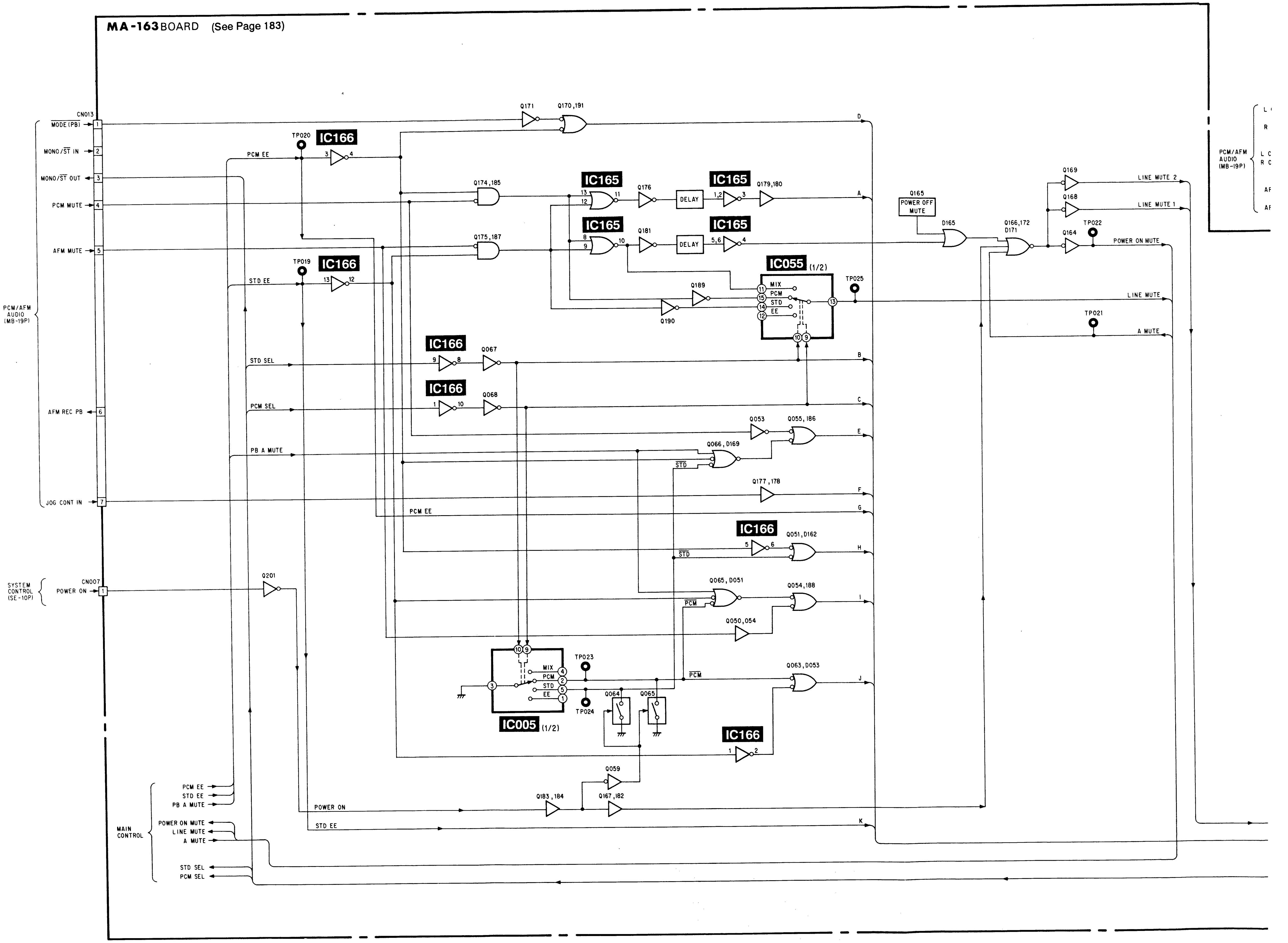

MA-163 BOARD (See Page 185)
IC807 MAIN CONTROL
IC807 ADDRESS LATCH
IC809 ROM
IC808 RAM
IC810 RESET
IC816
IC806 NON-VOLATILE MEMORY
IC805
IC804
IC812 DATA LATCH
IC813 DATA LATCH
IC811 DATA INPUT BUFFER
IC815 CHIP SELECT DECODER
IC824
IC814
IC823 (1/3)
IC820 (1/2)
IC819 DELAY
IC818 DELAY
IC817
IC822 DELAY
CN804
FUNC 1
FUNC 2
FUNC 3
FUNC 4
DATA SCREEN
SCK
SO
RESET
LED EN
V IN SEL
LOCAL ON
CN801
T
R
D
PRTL SEL 1
PRTL SEL 2
RS INH 1
SO
SCK
CN802
MSO2
MSI2
SCK 2
M RF SWP
MODE CS
POWER ON
ENABLE
FH MSK
REF V
GEN LOCK
JOG VD OFF
TROL
-10P
CN816
Q203, 205 SOLENOID START
Q202, 204 SOLENOID HOLD
START
HOLD
UNSW 5V
X801
TXD
RXD
DSR
RS INH 1
JOG CONT
OPT CS
SI
COM EN
CS
JOG VD OFF
MODE CS
ENABLE
POWER ON
START
HOLD
PCM SEL
STD SEL
AST B
A8 ~ A14
A15
A11 ~ A14
AD0 ~ AD7
RD
WR
Y FR DET
F-STILL
CSC
RST
FM CONT
VD
REF V
GEN LOCK
Q801
TP801
TP802
TP803
TP804
TP805
TP806
TP807
RV801 O/E WINDOW
RV802 EX O/E WINDOW
RV803 DELAYED VD
M RF SWP
FH MSK
MV MUTE
RGB
S/LINE
EDIT
PB A MUTE
A MUTE
STD EE
PCM EE
GEN LOCK
GPI OUT
SW1
SW2
SW3
SW4
CG SYNC DET
TEST
SIG DET
LOCAL ON
SYNC DET
CN807
VIDEO IN/OUT (IF-38P)
CN806
F STILL
EXT REF V
EXT O/E
CSO
CSCK
CSC
RST
CN805
REF VD
O/E
FM CONT (CSD)
WEN
SYNC DET
DSCK
DSO
C SYNC
DIGITAL PICTURE (MM-20P)
POWER ON MUTE
LINE MUTE
AUDIO IN/OUT
PB A MUTE

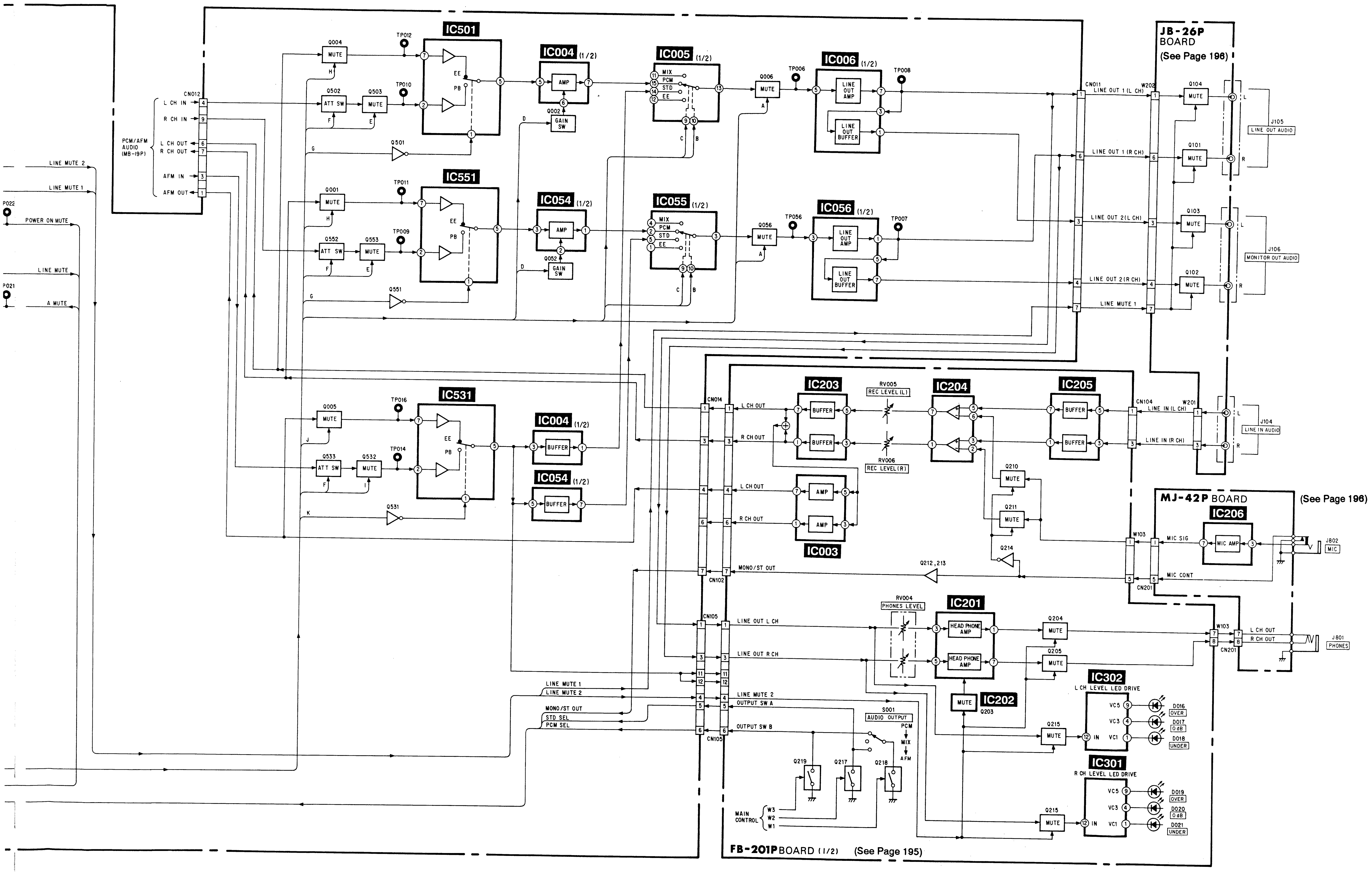
3-30. AFM/PCM AUDIO BLOCK DIAGRAM


VIDEO HEAD
SP 1CH
SP 2CH
LP 1CH
LP 2CH
RP-103P(SP)
RP-73P(SP)
BOARD
REC/PB AMP
REC PCM RF
PB PCM RF
PB VIDEO RF
REC VIDEO RF
(See Page 110)
FR-43
(See Page 139)
SE-10P
Q502,504
PCM/ATF MIX
REC ATF
GAIN SWITCH
503
L:V ING
(See Page 129) HK-5
Q213~218
Y/C/AFM/ATF MIX
CN602 ⑲ PB (PCM UNIT CN852 ⑨)
0.64Vp-p
CN602 ⑰ PB (PCM UNIT CN852 ⑦)
0.3Vp-p
IC854(PCM RF)
REC PCM CARRIER
R870,R871
C867-C869
AMP
LPF
FOL LOWER
LIMITER
DUTY
X2
PHASE COMP
LFE
VCO
RV852 FF
Q854
Q855
RV854 PB VCO
RV853 REW
FM DATA
TRANSFER CLOCK
S.RFMD
S.RFAR
IC855
RAM
CS2
IC856 (PCM PROCESS)
FM WOD/DEMOD
CRCC
RAM PORT CONTROLER
DATA INTERLEAVE
E FLG
ID DATA PROCESS
RACT OUT
RACT IN
IC857(PCM PROCESS)
ROM
8BIT-10BIT CONVERSION
INTERPOLATION
PHASE COMP
FV GENERATOR
SERIAL DATA
TRANSFER CLOCK
ERROR FLAG
SERVO (SE-10P)
Y PROCESS (HK-5)
CHROMA PROCESS (HK-5)
REC/PB HEAD AMP (FR-43)
CODING CHECK
SERVO (SE-10P)
CHECK PIN (PCM ERROR RATE CHECK)
PCM AREA
AFTER REC MASC
HD INSERT
C MUTE
PCM RF AREA
DRF SW PULSE
RAREA
RAMP
COMP SYNC
D601
INHIBIT
PB MK
PB DT
PB CK
EX PB MK
EX PB DT
PB CLK IN
RF SW PULSE
RP AFTER REC
L:M FULL ERASE ON
S REF PULSE
RF CONT SW PULSE
L:RAREA OFF
IC852
DUB TIMING PULSE
IC860
SET
IC858
TIME CODE PROCESS
IC851
IC859
X852 5MHz
H:NTSC/L:PAL
DET WINDOW
Q602,603
TP601
IC601
PCC
X601 4.19MHz
Q601
Q604

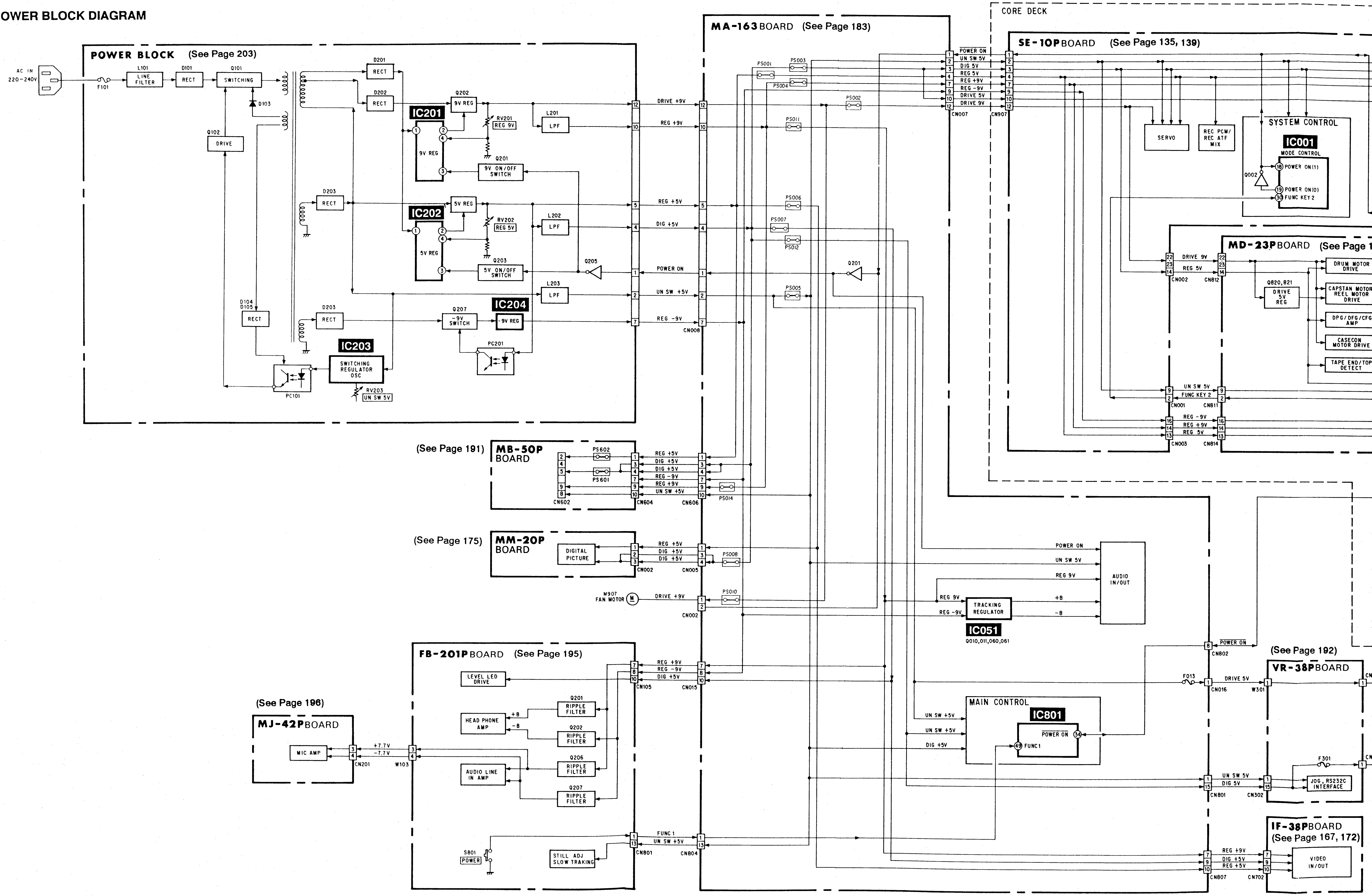

18 RACT IN
IC857(PCM PROCESS)
ROM
8BIT-10BIT CONVERSION
INTERPOLATION
PHASE COMP
FV GENERATOR
NTCC
H:NTSC/L:PAL
ADDA
BCK
WCK
PCO
SREF
RF SW
AREA
MCK
SDT
TCK
EFLG
RACT
MODE
CSMT
RINK
HDK
R CH G
PULD
PB 5V
LOCK
AF REC
PCM ACT
PB/L:REC
L:RESET
IC853(CLOCK GENERATOR)
LIMITER
LPF
VCO
MCLK
RV851
MASTER CLOCK
X851
11.58MHz
4.1Vp-p
11.58MHz
CN853 ⑫ EE
MODE
AD/DA DATA
BCK
WCK
MCK
L:AU EE
PCM REC MUTE
(See Page 159)
PD-19P BOARD
PB/L:REC
R CHG
MODE
PCM ACT
RF SW P
XCE
SI
SO
L:SCK
TP601
IC601
PCC
L:SCK
MSO
MSI
L:SCK
L:PCC CS
PCM REC MUTE
RF SWP
MS REF
IC603
PCM SI
PCM SO
SCK
(PCM ERROR RATE CHECK) CHECK PIN
SYSTEM CONTROL (SE-10P)
Q601
Q604
L:AUEE PORT
JOG
MON/L:STE OUT
MON/L:STE IN
AFM REC/L:PB
PCM MUTE
AFM MUTE
H:SP/L:LP
Q606,607
MUTE CONTROL
L:MODE
JOGAU MUTE
H:MONO/L:STEREO
H:MONO/L:STEREO
AFM H:REC/L:PB
PCM MUTE
AFM MUTE
AUDIO IN/OUT (MA-163)
FH MASK
L:IDM CS
L:FULL ERASE ON
H:NTSC/L:PAL
L:RESET
SYSTEM CONTROL (SE-10P)
CHECK PIN (PCM ERROR RATE CHECK)
T3
RF SWP
STD AUDIO
PB AFM CARRIER
IC004(A/D/D/A CONVERTER)
SHIFT REGISTER
COUNTER
COMPARATOR H.L
TIMING GENERATOR
INTEGRATOR
CURRENT SOURCE
SAMPLE HOLD
APERTURE AMP
REC ON
Q034,035
Q033
Q031
RV032 D/A GAIN
RV051 OFFSET
RV002 OFFSET L
RV002 REC LEVEL L
Q002
MUTE
Q052
RV052 REC LEVEL R
IC002(1/2) BUFER (REC) APERTURE AMP (PB)
IC002(1/2) INVERT AMP
Q031,032
Q001 REC/PB SWITCH
IC001 (NOISE REDUCTION)
EMPH 2
WHIGHT
VCA
EMPH 1
DET
MOA
RV301 NR DECODE LEVEL
INVERT AMP
IC003(1/2)
IC002(1/2) BUFFER (REC) APERTURE AMP (PB)
Q051 REC/PB SWITCH
L DA
R DA
L IN
L PB
R PB
R IN
(See Page 160) PA-27P BOARD
IC005
IC004
T661 LPF
T651 LPF
L IN
L OUT
R OUT
R IN
AUDIO IN/OUT (MA-163)
IC671(1/3)
AGC
5dB AMP
STD AUDIO
IC671(3/3)
EMPHASIS
MAIN OP AMP
FM MODULATOR
SL/LP SW
REC AFM CARRIER
IC671(2/3)
T603 1.8MHz BPF
Q671 RF AMP
FM DEMODULATOR
HOLD
Q605
Q608,609
(See Page 155)
MB-19P BOARD
EVO-9650P

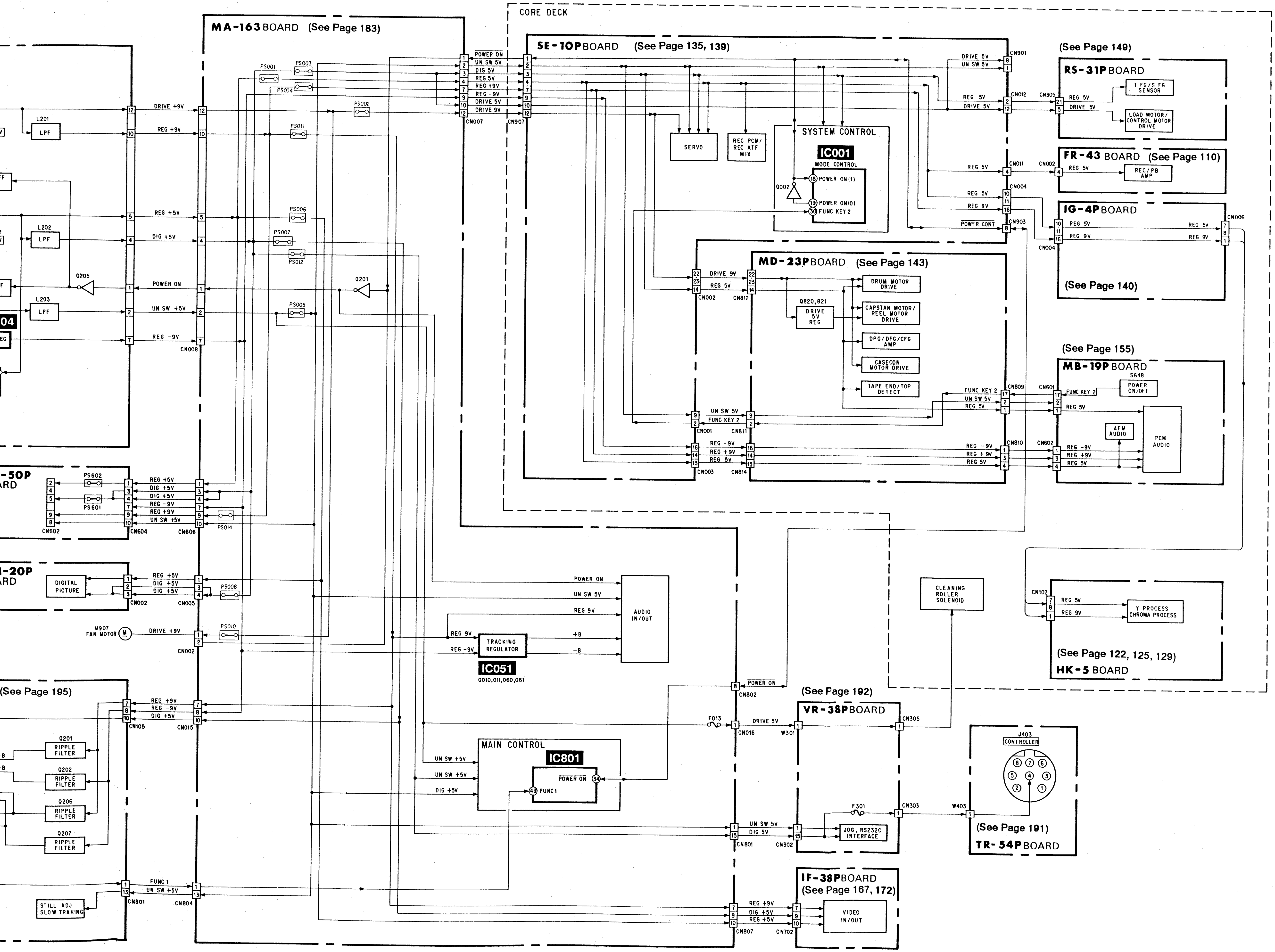
3-31. AUDIO IN/OUT BLOCK DIAGRAM


MA-163 BOARD (See Page 183)
CN013
MODE (PB)
MONO/ST IN
MONO/ST OUT
PCM MUTE
AFM MUTE
AFM REC PB
JOG CONT IN
PCM/AFM AUDIO (MB-19P)
SYSTEM CONTROL (SE-10P)
CN007
POWER ON
MAIN CONTROL
PCM EE
STD EE
PB A MUTE
POWER ON MUTE
LINE MUTE
A MUTE
STD SEL
PCM SEL
TP020
TP019
TP021
TP022
TP023
TP024
TP025
IC166
IC165
IC055 (1/2)
IC005 (1/2)
DELAY
MIX
PCM
STD
EE
Q171
Q170,191
Q174,185
Q175,187
Q176
Q181
Q179,180
Q189
Q190
Q067
Q068
Q053
Q055,186
Q066,D169
Q177,178
Q051,D162
Q065,D051
Q054,188
Q050,054
Q063,D053
Q064
Q065
Q059
Q183,184
Q167,182
Q201
Q165 POWER OFF MUTE
D165
Q166,172 D171
Q169
Q168
Q164
LINE MUTE 2
LINE MUTE 1
POWER ON MUTE
LINE MUTE
A MUTE
STD
PCM
PCM EE
POWER ON
STD EE
A
B
C
D
E
F
G
H
I
J
K
PCM/AFM AUDIO (MB-19P)


PCM/AFM AUDIO (MB-19P)
CN012
L CH IN
R CH IN
L CH OUT
R CH OUT
AFM IN
AFM OUT
LINE MUTE 2
LINE MUTE 1
P022
POWER ON MUTE
LINE MUTE
P021
A MUTE
IC501
Q004
MUTE
TP012
TP010
Q502
ATT SW
Q503
MUTE
Q501
EE
PB
IC004 (1/2)
AMP
Q002
GAIN SW
IC005 (1/2)
MIX
PCM
STD
EE
Q006
MUTE
TP006
IC006 (1/2)
LINE OUT AMP
LINE OUT BUFFER
TP008
IC551
Q001
TP011
Q552
Q553
TP009
Q551
IC054 (1/2)
Q052
IC055 (1/2)
Q056
TP056
IC056 (1/2)
TP007
IC531
Q005
TP016
Q533
Q532
TP014
Q531
IC004 (1/2)
BUFFER
IC054 (1/2)
BUFFER
CN011
W202
LINE OUT 1 (L CH)
LINE OUT 1 (R CH)
LINE OUT 2 (L CH)
LINE OUT 2 (R CH)
LINE MUTE 1
JB-26P BOARD (See Page 196)
Q104
Q101
Q103
Q102
J105 LINE OUT AUDIO
J106 MONITOR OUT AUDIO
CN014
L CH OUT
R CH OUT
CN102
MONO/ST OUT
IC203
BUFFER
RV005 REC LEVEL (L)
RV006 REC LEVEL (R)
IC204
IC205
CN104
W201
LINE IN (L CH)
LINE IN (R CH)
J104 LINE IN AUDIO
IC003
AMP
Q210
Q211
Q214
Q212, 213
MJ-42P BOARD (See Page 196)
IC206
MIC AMP
W103
MIC SIG
MIC CONT
CN201
J802 MIC
CN105
LINE OUT L CH
LINE OUT R CH
LINE MUTE 1
LINE MUTE 2
MONO/ST OUT
STD SEL
PCM SEL
OUTPUT SW A
OUTPUT SW B
RV004 PHONES LEVEL
IC201
HEAD PHONE AMP
Q204
Q205
L CH OUT
R CH OUT
J801 PHONES
IC202
Q203
IC302
L CH LEVEL LED DRIVE
Q215
IN
VC5
VC3
VC1
D016 OVER
D017 0dB
D018 UNDER
IC301
R CH LEVEL LED DRIVE
D019 OVER
D020 0dB
D021 UNDER
S001 AUDIO OUTPUT
PCM
MIX
AFM
Q219
Q217
Q218
MAIN CONTROL
W3
W2
W1
FB-201P BOARD (1/2) (See Page 195)

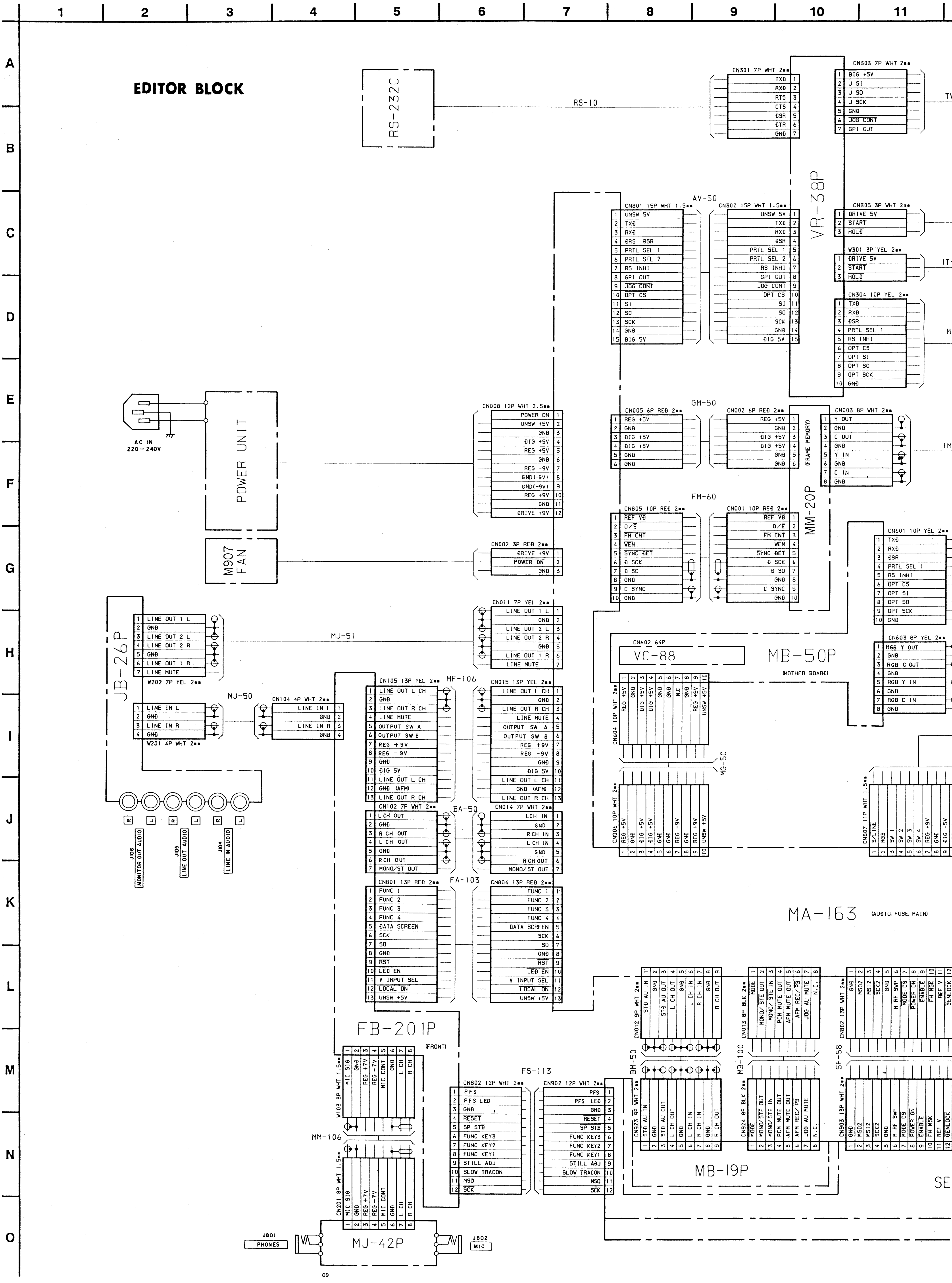
3-32. POWER BLOCK DIAGRAM

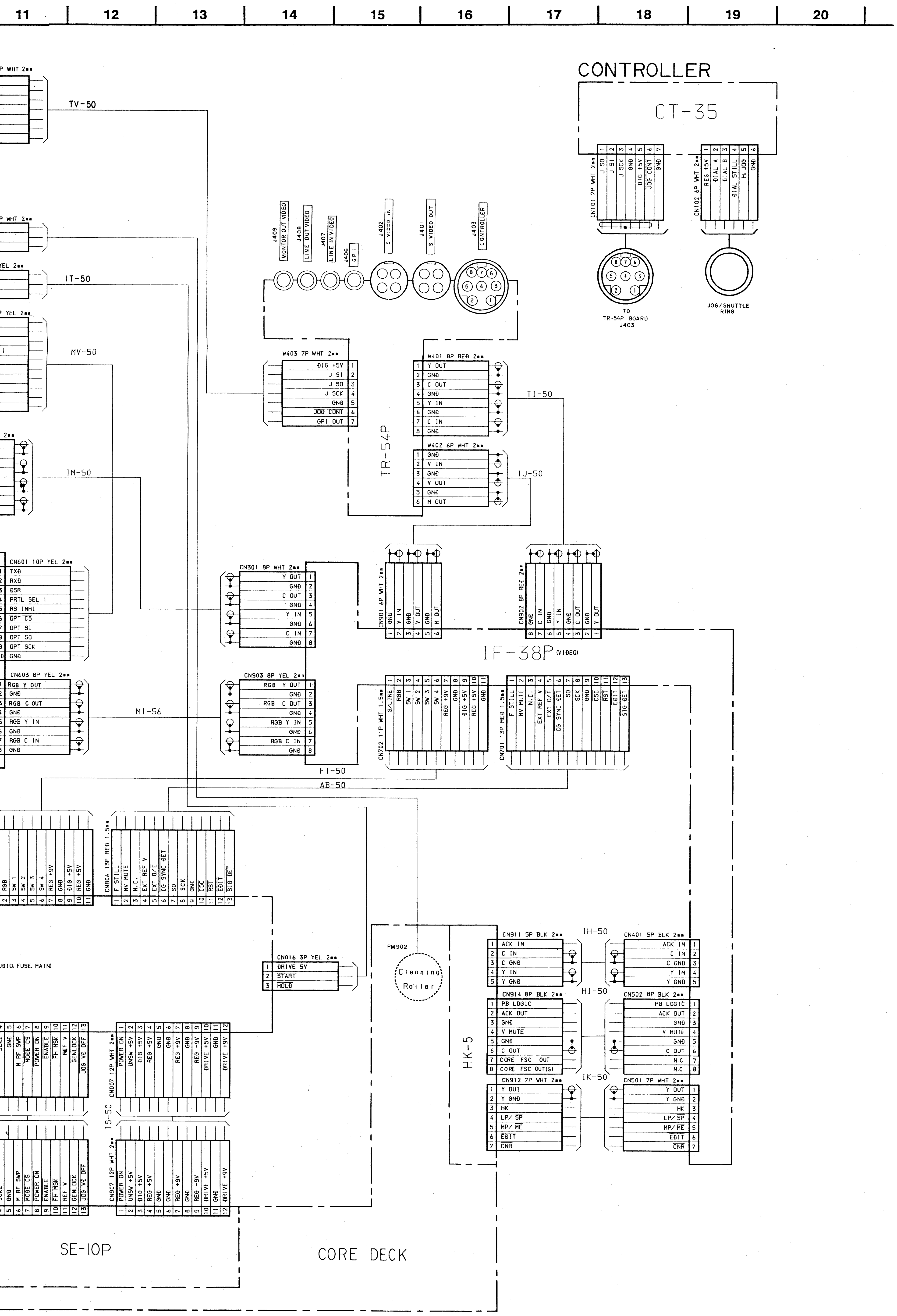

POWER BLOCK (See Page 203)
AC IN 220-240V
F101
L101 LINE FILTER
D101 RECT
Q101 SWITCHING
D103
Q102 DRIVE
D201 RECT
D202 RECT
Q202 9V REG
IC201
9V REG
RV201 REG 9V
Q201 9V ON/OFF SWITCH
L201 LPF
D203 RECT
IC202
5V REG
RV202 REG 5V
Q203 5V ON/OFF SWITCH
L202 LPF
Q205
L203 LPF
D104 D105 RECT
D203 RECT
Q207 -9V SWITCH
IC204 -9V REG
PC201
IC203 SWITCHING REGULATOR OSC
PC101
RV203 UN SW 5V
DRIVE +9V
REG +9V
REG +5V
DIG +5V
POWER ON
UN SW +5V
REG -9V
CN008
MA-163 BOARD (See Page 183)
PS001
PS003
PS004
PS002
PS011
PS006
PS007
PS012
PS005
Q201
CN007
CORE DECK
SE-10P BOARD (See Page 135, 139)
POWER ON
UN SW 5V
DIG 5V
REG 5V
REG +9V
REG -9V
DRIVE 5V
DRIVE 9V
CN907
SERVO
REC PCM/ REC ATF MIX
SYSTEM CONTROL
IC001
MODE CONTROL
Q002
POWER ON(1)
POWER ON(0)
FUNC KEY 2
MD-23P BOARD (See Page 1
DRIVE 9V
REG 5V
CN002
CN812
DRUM MOTOR DRIVE
Q820,821 DRIVE 5V REG
CAPSTAN MOTOR REEL MOTOR DRIVE
DPG/DFG/CFG AMP
CASECON MOTOR DRIVE
TAPE END/TOP DETECT
UN SW 5V
FUNC KEY 2
CN001
CN811
REG -9V
REG +9V
REG 5V
CN003
CN814
(See Page 191) MB-50P BOARD
PS602
PS601
CN602
CN604
CN606
PS014
REG +5V
DIG +5V
DIG +5V
REG -9V
REG +9V
UN SW +5V
(See Page 175) MM-20P BOARD
DIGITAL PICTURE
REG +5V
DIG +5V
DIG +5V
CN002
CN005
PS008
M907 FAN MOTOR
DRIVE +9V
PS010
CN002
POWER ON
UN SW 5V
REG 9V
AUDIO IN/OUT
REG 9V
REG -9V
TRACKING REGULATOR
+B
-B
IC051
Q010,011,060,061
FB-201P BOARD (See Page 195)
REG +9V
REG -9V
DIG +5V
CN105
CN015
LEVEL LED DRIVE
Q201 RIPPLE FILTER
HEAD PHONE AMP
Q202 RIPPLE FILTER
Q206 RIPPLE FILTER
AUDIO LINE IN AMP
Q207 RIPPLE FILTER
(See Page 196) MJ-42P BOARD
MIC AMP
+7.7V
-7.7V
CN201
W103
S801 POWER
STILL ADJ SLOW TRAKING
FUNC 1
UN SW +5V
CN801
CN804
MAIN CONTROL
IC801
POWER ON
FUNC1
UN SW +5V
UN SW +5V
DIG +5V
POWER ON
CN802
(See Page 192)
VR-38P BOARD
F013
DRIVE 5V
CN016
W301
F301
JOG, RS232C INTERFACE
UN SW 5V
DIG 5V
CN801
CN302
IF-38P BOARD (See Page 167, 172)
REG +9V
DIG +5V
REG +5V
VIDEO IN/OUT
CN807
CN702


MA-163 BOARD (See Page 183)
CORE DECK
SE-10P BOARD (See Page 135, 139)
SERVO
REC PCM/REC ATF MIX
SYSTEM CONTROL
IC001
MODE CONTROL
POWER ON (1)
POWER ON (0)
FUNC KEY 2
Q002
POWER ON
UN SW 5V
DIG 5V
REG 5V
REG +9V
REG -9V
DRIVE 5V
DRIVE 9V
CN007
CN907
CN901
CN012
CN011
CN004
CN903
POWER CONT
(See Page 149)
RS-31P BOARD
T FG/S FG SENSOR
LOAD MOTOR/CONTROL MOTOR DRIVE
CN305
FR-43 BOARD (See Page 110)
REC/PB AMP
CN002
IG-4P BOARD
(See Page 140)
CN006
MD-23P BOARD (See Page 143)
DRUM MOTOR DRIVE
Q820,821
DRIVE 5V REG
CAPSTAN MOTOR/REEL MOTOR DRIVE
DPG/DFG/CFG AMP
CASECON MOTOR DRIVE
TAPE END/TOP DETECT
CN002
CN812
CN001
CN811
CN003
CN814
CN809
CN810
(See Page 155)
MB-19P BOARD
S648
POWER ON/OFF
AFM AUDIO
PCM AUDIO
CN601
CN602
HK-5 BOARD
(See Page 122, 125, 129)
Y PROCESS CHROMA PROCESS
CN102
CLEANING ROLLER SOLENOID
DRIVE +9V
REG +9V
REG +5V
DIG +5V
POWER ON
UN SW +5V
REG -9V
L201
L202
L203
LPF
Q205
Q201
PS001
PS002
PS003
PS004
PS005
PS006
PS007
PS011
PS012
PS014
PS008
PS010
PS601
PS602
CN008
-50P
ARD
CN602
CN604
CN606
-20P
ARD
DIGITAL PICTURE
CN002
CN005
M907 FAN MOTOR
CN002
AUDIO IN/OUT
TRACKING REGULATOR
IC051
Q010,011,060,061
+8
-8
(See Page 195)
Q201
Q202
Q206
Q207
RIPPLE FILTER
CN105
CN015
FUNC 1
STILL ADJ SLOW TRAKING
CN801
CN804
MAIN CONTROL
IC801
POWER ON
FUNC1
CN802
F013
CN016
W301
(See Page 192)
VR-38P BOARD
CN305
F301
CN303
JOG, RS232C INTERFACE
CN801
CN302
W403
J403
CONTROLLER
(See Page 191)
TR-54P BOARD
IF-38P BOARD
(See Page 167, 172)
VIDEO IN/OUT
CN807
CN702

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

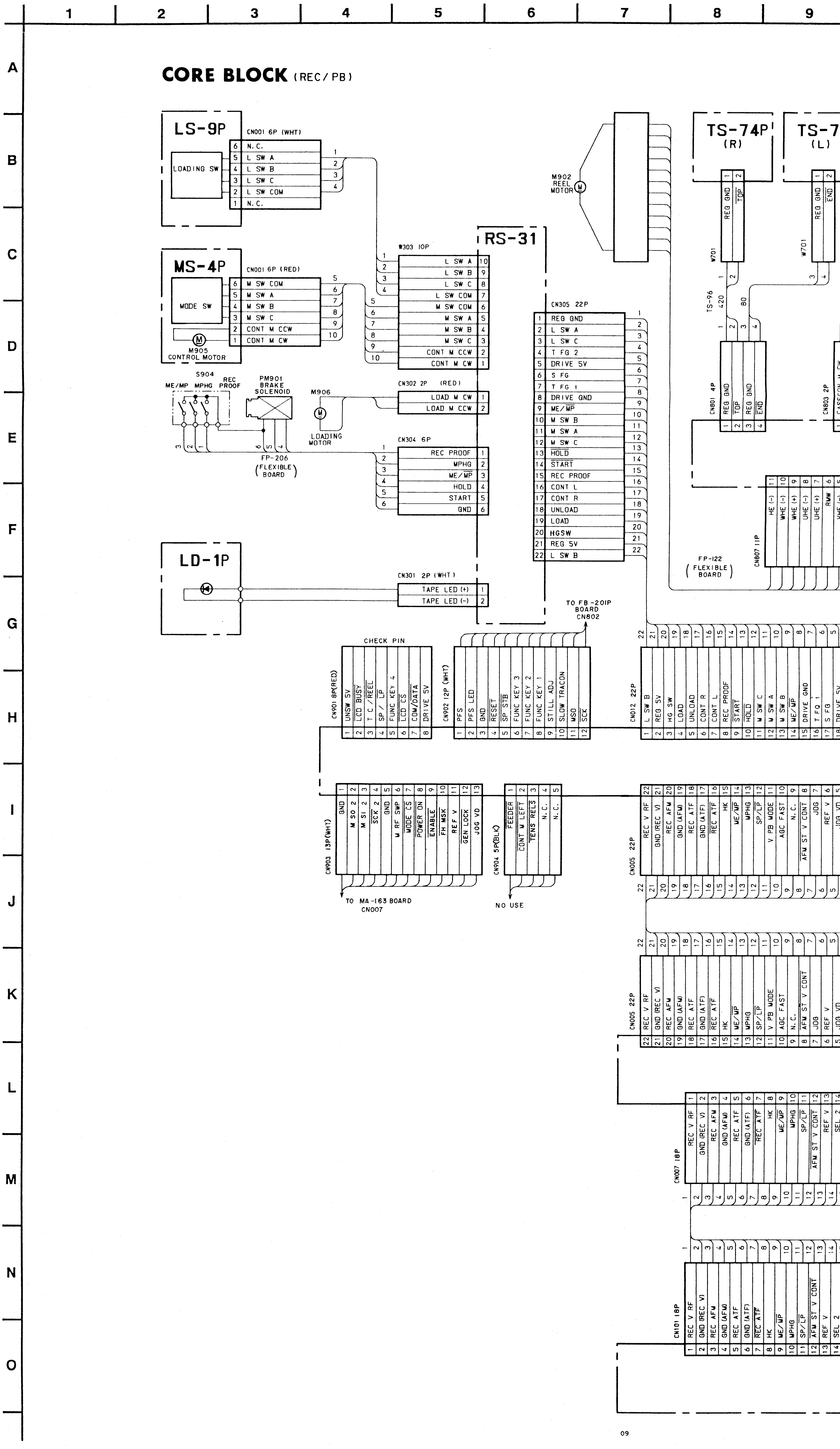
4-1. FRAME SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
EDITOR BLOCK
RS-232C
RS-10
CN301 7P WHT 2mm
TXD
RXD
RTS
CTS
DSR
DTR
GND
CN303 7P WHT 2mm
DIG +5V
J SI
J SO
J SCK
GND
JOG CONT
GPI OUT
VR-38P
AV-50
CN801 15P WHT 1.5mm
CN302 15P WHT 1.5mm
UNSW 5V
PRTL SEL 1
PRTL SEL 2
RS INHI
OPT CS
DIG 5V
CN305 3P WHT 2mm
DRIVE 5V
START
HOLD
W301 3P YEL 2mm
CN304 10P YEL 2mm
OPT SI
OPT SO
OPT SCK
AC IN
220－240V
POWER UNIT
CN008 12P WHT 2.5mm
POWER ON
REG +5V
REG -9V
GND(-9V)
REG +9V
DRIVE +9V
GM-50
CN005 6P RED 2mm
CN002 6P RED 2mm
CN003 8P WHT 2mm
Y OUT
C OUT
Y IN
C IN
(FRAME MEMORY)
MM-20P
FM-60
CN805 10P RED 2mm
CN001 10P RED 2mm
REF VD
O/E
FM CNT
WEN
SYNC DET
D SCK
D SO
C SYNC
M907
FAN
CN002 3P RED 2mm
CN601 10P YEL 2mm
CN011 7P YEL 2mm
LINE OUT 1 L
LINE OUT 2 L
LINE OUT 2 R
LINE OUT 1 R
LINE MUTE
JB-26P
MJ-51
W202 7P YEL 2mm
CN602 64P
VC-88
MB-50P
(MOTHER BOARD)
CN603 8P WHT 2mm
RGB Y OUT
RGB C OUT
RGB Y IN
RGB C IN
MJ-50
CN104 4P WHT 2mm
LINE IN L
LINE IN R
W201 4P WHT 2mm
MF-106
CN105 13P YEL 2mm
CN015 13P YEL 2mm
LINE OUT L CH
LINE OUT R CH
OUTPUT SW A
OUTPUT SW B
REG +9V
REG -9V
DIG 5V
GND (AFM)
CN604 10P WHT 2mm
MG-50
CN006 10P WHT 2mm
CN807 11P WHT 1.5mm
S/LINE
RGB
SW 1
SW 2
SW 3
SW 4
BA-50
CN102 7P WHT 2mm
CN014 7P WHT 2mm
L CH OUT
R CH OUT
L CH IN
R CH IN
MONO/ST OUT
J106
MONITOR OUT AUDIO
J105
LINE OUT AUDIO
J104
LINE IN AUDIO
FA-103
CN801 13P RED 2mm
CN804 13P RED 2mm
FUNC 1
FUNC 2
FUNC 3
FUNC 4
DATA SCREEN
SCK
SO
RST
LED EN
V INPUT SEL
LOCAL ON
UNSW +5V
MA-163
(AUDIO, FUSE, MAIN)
CN012 9P WHT 2mm
CN013 8P BLK 2mm
CN802 13P WHT 2mm
STD AU IN
STD AU OUT
MODE
MONO/STE OUT
MONO/STE IN
PCM MUTE OUT
AFM MUTE OUT
AFM REC/PB
JOG AU MUTE
N.C.
MSI2
MSO2
SCK2
M RF SWP
MODE CS
ENABLE
FM MSK
REF V
GENLOCK
FB-201P
(FRONT)
BM-50
MB-100
SF-58
W103 8P WHT 1.5mm
MIC SIG
REG +7V
REG -7V
MIC CONT
FS-113
CN802 12P WHT 2mm
CN902 12P WHT 2mm
PFS
PFS LED
RESET
SP STB
FUNC KEY3
FUNC KEY2
FUNC KEY1
STILL ADJ
SLOW TRACON
MSO
CN923 9P WHT 2mm
CN924 8P BLK 2mm
CN903 13P WHT 2mm
MM-106
CN201 8P WHT 1.5mm
MB-19P
J801
PHONES
MJ-42P
J802
MIC
SE

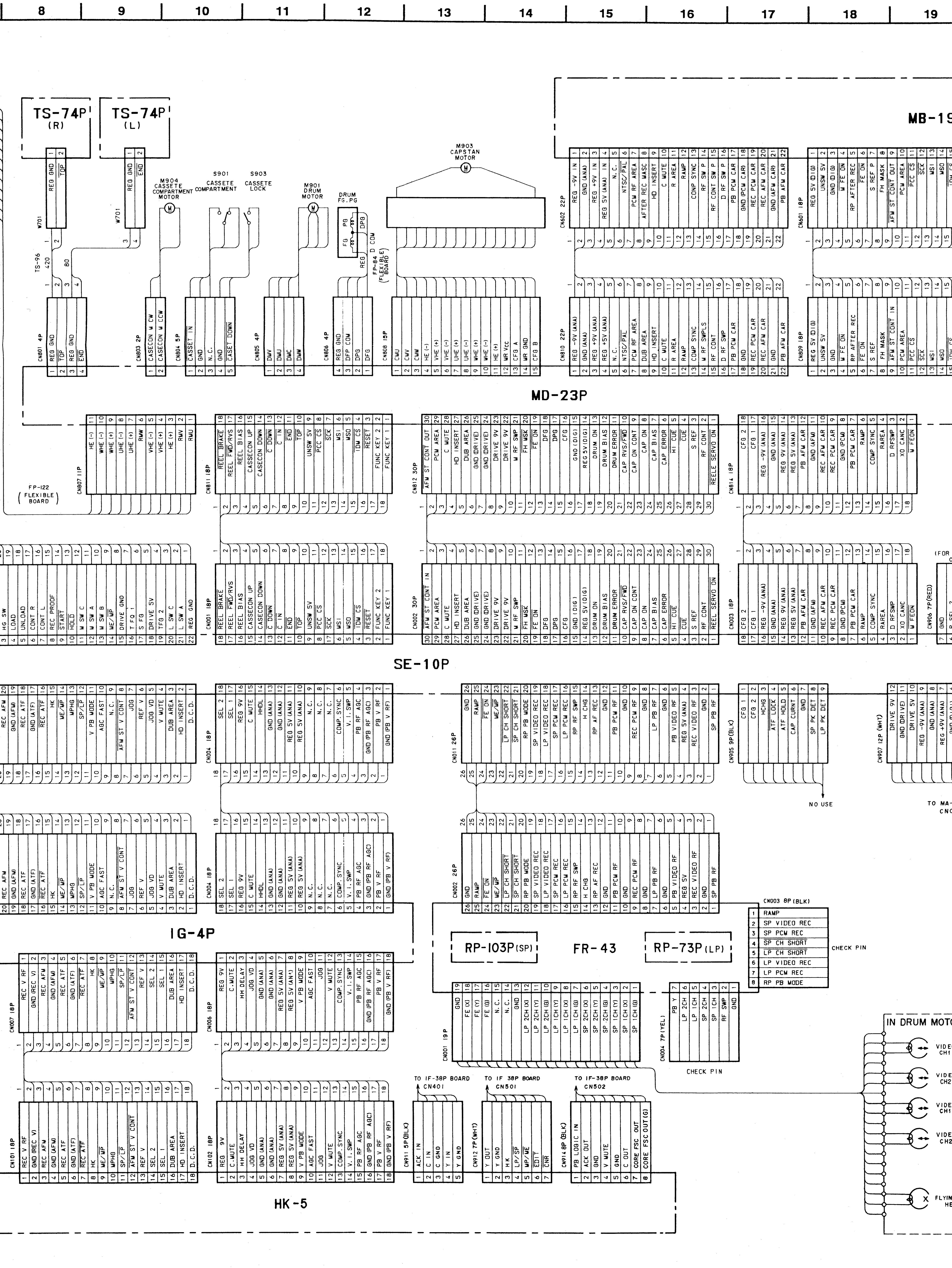

11
12
13
14
15
16
17
18
19
20
CONTROLLER
CT-35
CN101 7P WHT 2mm
1 J SO
2 J SI
3 J SCK
4 GND
5 DIG +5V
6 JOG CONT
7 GND
CN102 6P WHT 2mm
1 REG +5V
2 DIAL A
3 DIAL B
4 DIAL STILL
5 H. JOG
6 GND
TO TR-54P BOARD J403
JOG/SHUTTLE RING
J409 MONITOR OUT VIDEO
J408 LINE OUT VIDEO
J407 LINE IN VIDEO
J406 GPI
J402 S VIDEO IN
J401 S VIDEO OUT
J403 CONTROLLER
TV-50
IT-50
MV-50
IM-50
MI-56
W403 7P WHT 2mm
DIG +5V 1
J SI 2
J SO 3
J SCK 4
GND 5
JOG CONT 6
GPI OUT 7
W401 8P RED 2mm
1 Y OUT
2 GND
3 C OUT
4 GND
5 Y IN
6 GND
7 C IN
8 GND
TI-50
TR-54P
W402 6P WHT 2mm
1 GND
2 V IN
3 GND
4 V OUT
5 GND
6 M OUT
IJ-50
CN601 10P YEL 2mm
TXD
RXD
DSR
PRTL SEL 1
RS INHI
OPT CS
OPT SI
OPT SO
OPT SCK
GND
CN603 8P YEL 2mm
RGB Y OUT
GND
RGB C OUT
GND
RGB Y IN
GND
RGB C IN
GND
CN301 8P WHT 2mm
Y OUT 1
GND 2
C OUT 3
GND 4
Y IN 5
GND 6
C IN 7
GND 8
CN901 6P WHT 2mm
1 GND
2 V IN
3 GND
4 V OUT
5 GND
6 M OUT
CN902 8P RED 2mm
8 GND
7 C IN
6 GND
5 Y IN
4 GND
3 C OUT
2 GND
1 Y OUT
IF-38P (VIDEO)
CN903 8P YEL 2mm
RGB Y OUT 1
GND 2
RGB C OUT 3
GND 4
RGB Y IN 5
GND 6
RGB C IN 7
GND 8
CN702 11P WHT 1.5mm
1 S/LINE
2 RGB
3 SW 1
4 SW 2
5 SW 3
6 SW 4
7 REG +9V
8 GND
9 DIG +5V
10 REG +5V
11 GND
CN701 13P RED 1.5mm
1 F STILL
2 MV MUTE
3 N.C.
4 EXT REF V
5 EXT O/E
6 CG SYNC DET
7 SO
8 SCK
9 GND
10 CSC
11 RST
12 EDIT
13 SIG DET
FI-50
AB-50
RGB
SW 1
SW 2
SW 3
SW 4
REG +9V
GND
DIG +5V
REG +5V
GND
CN806 13P RED 1.5mm
1 F STILL
2 MV MUTE
3 N.C.
4 EXT REF V
5 EXT O/E
6 CG SYNC DET
7 SO
8 SCK
9 GND
10 CSC
11 RST
12 EDIT
13 SIG DET
(DIG FUSE, MAIN)
CN016 3P YEL 2mm
1 DRIVE 5V
2 START
3 HOLD
PM902
Cleaning Roller
HK-5
CN911 5P BLK 2mm
1 ACK IN
2 C IN
3 C GND
4 Y IN
5 Y GND
IH-50
CN401 5P BLK 2mm
ACK IN 1
C IN 2
C GND 3
Y IN 4
Y GND 5
CN914 8P BLK 2mm
1 PB LOGIC
2 ACK OUT
3 GND
4 V MUTE
5 GND
6 C OUT
7 CORE FSC OUT
8 CORE FSC OUT(G)
HI-50
CN502 8P BLK 2mm
PB LOGIC 1
ACK OUT 2
GND 3
V MUTE 4
GND 5
C OUT 6
N.C 7
N.C 8
CN912 7P WHT 2mm
1 Y OUT
2 Y GND
3 HK
4 LP/SP
5 MP/ME
6 EDIT
7 CNR
IK-50
CN501 7P WHT 2mm
Y OUT 1
Y GND 2
HK 3
LP/SP 4
MP/ME 5
EDIT 6
CNR 7
M RF SWP
MODE CS
POWER ON
ENABLE
FH MSK
REF V
GENLOCK
JOG VD OFF
CN007 12P WHT 2mm
1 POWER ON
2 UNSW +5V
3 DIG +5V
4 REG +5V
5 GND
6 GND
7 REG +9V
8 GND
9 REG -9V
10 DRIVE +5V
11 GND
12 DRIVE +9V
IS-50
CN907 12P WHT 2mm
1 POWER ON
2 UNSW +5V
3 DIG +5V
4 REG +5V
5 GND
6 GND
7 REG +9V
8 GND
9 REG -9V
10 DRIVE +5V
11 GND
12 DRIVE +9V
SE-10P
CORE DECK

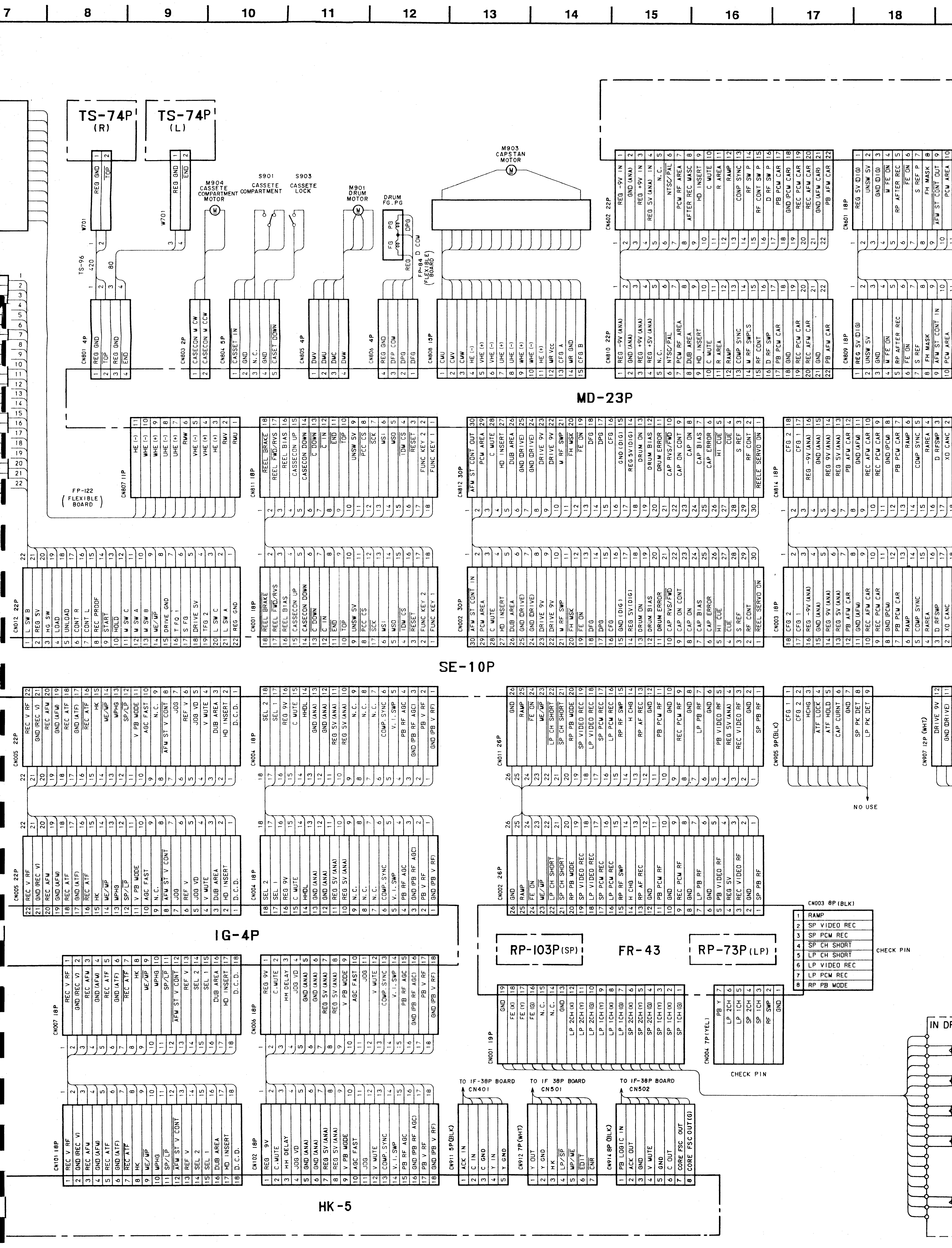
FRAME FRAME

CORE BLOCK (REC/PB)



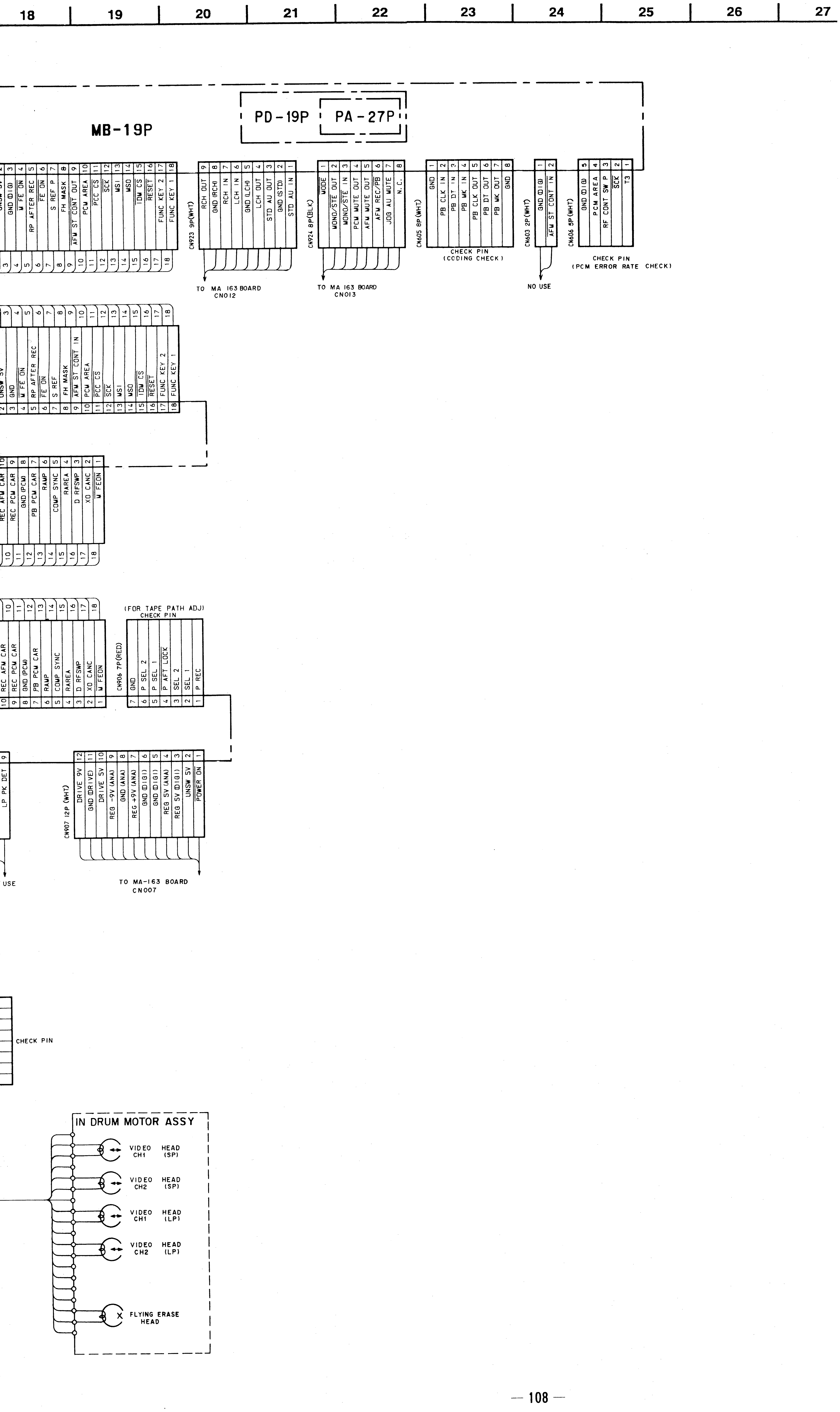
1 2 3 4 5 6 7 8 9
A B C D E F G H I J K L M N O
LS-9P
LOADING SW
CN001 6P (WHT)
6 N.C.
5 L SW A
4 L SW B
3 L SW C
2 L SW COM
1 N.C.
MS-4P
MODE SW
CN001 6P (RED)
6 M SW COM
5 M SW A
4 M SW B
3 M SW C
2 CONT M CCW
1 CONT M CW
M905 CONTROL MOTOR
S904
ME/MP MPHG REC PROOF
PM901 BRAKE SOLENOID
M906 LOADING MOTOR
FP-206 (FLEXIBLE BOARD)
LD-1P
RS-31
W303 10P
L SW A 10
L SW B 9
L SW C 8
L SW COM 7
M SW COM 6
M SW A 5
M SW B 4
M SW C 3
CONT M CCW 2
CONT M CW 1
CN302 2P (RED)
LOAD M CW 1
LOAD M CCW 2
CN304 6P
REC PROOF 1
MPHG 2
ME/MP 3
HOLD 4
START 5
GND 6
CN301 2P (WHT)
TAPE LED (+) 1
TAPE LED (-) 2
CN305 22P
1 REG GND
2 L SW A
3 L SW C
4 T FG 2
5 DRIVE 5V
6 S FG
7 T FG 1
8 DRIVE GND
9 ME/MP
10 M SW B
11 M SW A
12 M SW C
13 HOLD
14 START
15 REC PROOF
16 CONT L
17 CONT R
18 UNLOAD
19 LOAD
20 HGSW
21 REG 5V
22 L SW B
M902 REEL MOTOR
TO FB-201P BOARD CN802
TS-74P (R)
TS-7 (L)
REG GND TOP
REG GND END
W701
TS-96 420
80
CN801 4P
REG GND TOP REG GND END
CN803 2P
FP-122 (FLEXIBLE BOARD)
CN807 11P
HE (-) WHE (-) WHE (+) UHE (-) UHE (+) RMW
CHECK PIN
CN901 8P(RED)
UNSW 5V LCD BUSY T C/REEL SP/LP FUNC KEY 4 LCD CS COM/DATA DRIVE 5V
CN902 12P (WHT)
PFS PFS LED GND RESET SP STB FUNC KEY 3 FUNC KEY 2 FUNC KEY 1 STILL ADJ SLOW TRACON MSO SCK
CN012 22P
L SW B REG 5V HG SW LOAD UNLOAD CONT R CONT L REC PROOF START HOLD M SW C M SW A M SW B ME/MP DRIVE GND T FG 1 S FG DRIVE 5V
CN903 13P(WHT)
GND M SO 2 M SI 2 SCK 2 GND M RF SWP MODE CS POWER ON ENABLE FH MSK REF V GEN LOCK JOG VD
TO MA-163 BOARD CN007
CN904 5P(BLK)
FEEDER CONT M LEFT TENS RELS N.C. N.C.
NO USE
CN005 22P
REC V RF GND (REC V) REC AFM GND (AFM) REC ATF GND (ATF) REC ATF HK ME/MP MPHG SP/LP V PB MODE AGC FAST N.C. AFM ST V CONT JOG REF V JOG VD
CN007 18P
REC V RF GND (REC V) REC AFM GND (AFM) REC ATF GND (ATF) REC ATF HK ME/MP MPHG SP/LP AFM ST V CONT REF V SEL 2
CN101 18P
REC V RF GND (REC V) REC AFM GND (AFM) REC ATF GND (ATF) REC ATF HK ME/MP MPHG SP/LP AFM ST V CONT REF V SEL 2
09


8
9
10
11
12
13
14
15
16
17
18
19
TS-74P (R)
TS-74P (L)
W701
TS-96
M904 CASSETE COMPARTMENT MOTOR
S901 CASSETE COMPARTMENT
S903 CASSETE LOCK
M901 DRUM MOTOR
DRUM FG.PG
FP-84 (FLEXIBLE BOARD)
M903 CAPSTAN MOTOR
MB-19
CN801 4P
CN803 2P
CN804 5P
CN805 4P
CN806 4P
CN808 15P
CN810 22P
CN809 18P
CN602 22P
CN601 18P
MD-23P
CN807 11P
CN811 18P
CN812 30P
CN814 18P
FP-122 (FLEXIBLE BOARD)
CN001 18P
CN002 30P
CN003 18P
CN906 7P (RED)
SE-10P
CN004 18P
CN011 26P
CN905 9P (BLK)
CN907 12P (WHT)
NO USE
TO MA-
CN002 26P
CN003 8P (BLK)
1 RAMP
2 SP VIDEO REC
3 SP PCM REC
4 SP CH SHORT
5 LP CH SHORT
6 LP VIDEO REC
7 LP PCM REC
8 RP PB MODE
CHECK PIN
IG-4P
RP-103P (SP)
FR-43
RP-73P (LP)
CN007 18P
CN006 18P
CN001 19P
CN004 7P (YEL)
CHECK PIN
IN DRUM MOTOR
VIDEO CH1
VIDEO CH2
FLYING HEAD
TO IF-38P BOARD CN401
TO IF 38P BOARD CN501
TO IF-38P BOARD CN502
CN101 18P
CN102 18P
CN911 5P (BLK)
CN912 7P (WHT)
CN914 8P (BLK)
HK-5



7
8
9
10
11
12
13
14
15
16
17
18
TS-74P (R)
TS-74P (L)
REG GND
TOP
END
W701
TS-96
M904 CASSETE COMPARTMENT MOTOR
S901 CASSETE COMPARTMENT
S903 CASSETE LOCK
M901 DRUM MOTOR
DRUM FG.PG
FP-84 (FLEXIBLE BOARD)
M903 CAPSTAN MOTOR
CN602 22P
CN601 18P
CN801 4P
CN803 2P
CN804 5P
CN805 4P
CN806 4P
CN808 15P
CN810 22P
CN809 18P
MD-23P
CN807 11P
FP-122 (FLEXIBLE BOARD)
CN811 18P
CN812 30P
CN814 18P
CN012 22P
CN001 18P
CN002 30P
CN003 18P
SE-10P
CN005 22P
CN004 18P
CN011 26P
CN905 9P(BLK)
CN907 12P (WHT)
NO USE
CN005 22P
CN004 18P
CN002 26P
CN003 8P (BLK)
1 RAMP
2 SP VIDEO REC
3 SP PCM REC
4 SP CH SHORT
5 LP CH SHORT
6 LP VIDEO REC
7 LP PCM REC
8 RP PB MODE
CHECK PIN
IG-4P
RP-103P(SP)
FR-43
RP-73P(LP)
CN007 18P
CN006 18P
CN001 19P
CN004 7P(YEL)
CHECK PIN
IN DR
TO IF-38P BOARD CN401
TO IF 38P BOARD CN501
TO IF-38P BOARD CN502
CN101 18P
CN102 18P
CN911 5P(BLK)
CN912 7P(WHT)
CN914 8P(BLK)
HK-5

09


18
19
20
21
22
23
24
25
26
27
MB-19P
PD-19P
PA-27P
GND (DIG)
M FE ON
RP AFTER REC
FE ON
S REF P
FH MASK
AFM ST CONT OUT
PCM AREA
PCC CS
SCK
MSI
MSO
IDM CS
RESET
FUNC KEY 2
FUNC KEY 1
CN923 9P(WHT)
RCH OUT
GND (RCH)
RCH IN
LCH IN
GND (LCH)
LCH OUT
STD AU OUT
GND (STD)
STD AU IN
TO MA 163 BOARD CN012
CN924 8P(BLK)
MODE
MONO/STE OUT
MONO/STE IN
PCM MUTE OUT
AFM MUTE OUT
AFM REC/PB
JOG AU MUTE
N.C.
TO MA 163 BOARD CN013
CN605 8P(WHT)
GND
PB CLK IN
PB DT IN
PB MK IN
PB CLK OUT
PB DT OUT
PB MK OUT
GND
CHECK PIN (CODING CHECK)
CN603 2P(WHT)
GND (DIG)
AFM ST CONT IN
NO USE
CN606 5P(WHT)
GND (DIG)
PCM AREA
RF CONT SW P
SCK
T3
CHECK PIN (PCM ERROR RATE CHECK)
UNSW 5V
GND
M FE ON
RP AFTER REC
FE ON
S REF
FH MASK
AFM ST CONT IN
PCM AREA
PCC CS
SCK
MSI
MSO
IDM CS
RESET
FUNC KEY 2
FUNC KEY 1
REC AFM CAR
REC PCM CAR
GND (PCM)
PB PCM CAR
RAMP
COMP SYNC
RAREA
D RFSWP
XO CANC
M FEON
(FOR TAPE PATH ADJ) CHECK PIN
CN906 7P(RED)
GND
P SEL 2
P SEL 1
P AFT LOCK
SEL 2
SEL 1
P REC
LP PK DET
USE
CN907 12P (WHT)
DRIVE 9V
GND (DRIVE)
DRIVE 5V
REG -9V (ANA)
GND (ANA)
REG +9V (ANA)
GND (DIGI)
GND (DIGI)
REG 5V (ANA)
REG 5V (DIGI)
UNSW 5V
POWER ON
TO MA-163 BOARD CN007
CHECK PIN
IN DRUM MOTOR ASSY
VIDEO HEAD CH1 (SP)
VIDEO HEAD CH2 (SP)
VIDEO HEAD CH1 (LP)
VIDEO HEAD CH2 (LP)
FLYING ERASE HEAD

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ● : Through hole is omitted.
- ■ : Parts mounted on the conductor side.
- ▓ : Pattern from the side which enables seeing.
- ▒ : Pattern of the rear side.
- Circled numbers refer to waveforms.

Caution:

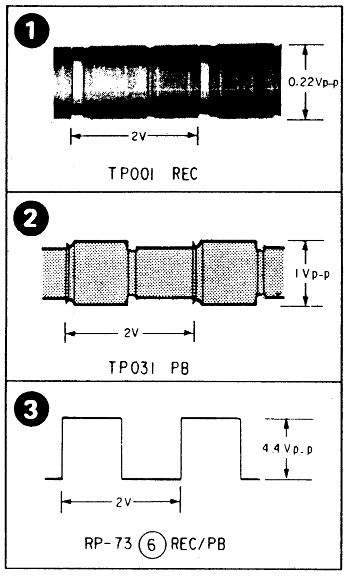
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the pattern face are indicated.

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repeir.
- —— : B+ Line.
- - - - : B– Line.
- ⇨ : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltages are taken with a VOM (Input impedance 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

FR-43 BOARD

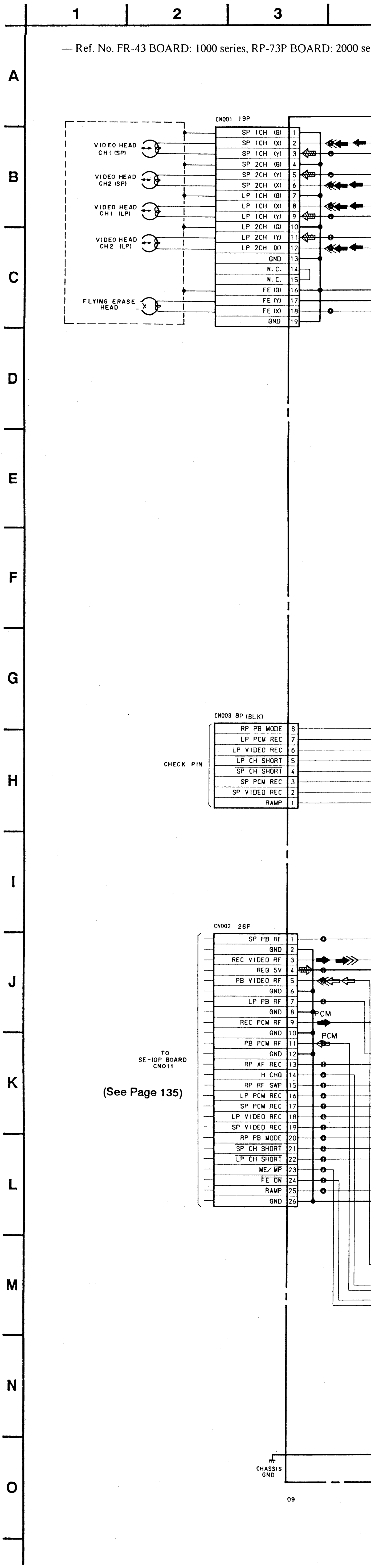


- SIGNAL PATH

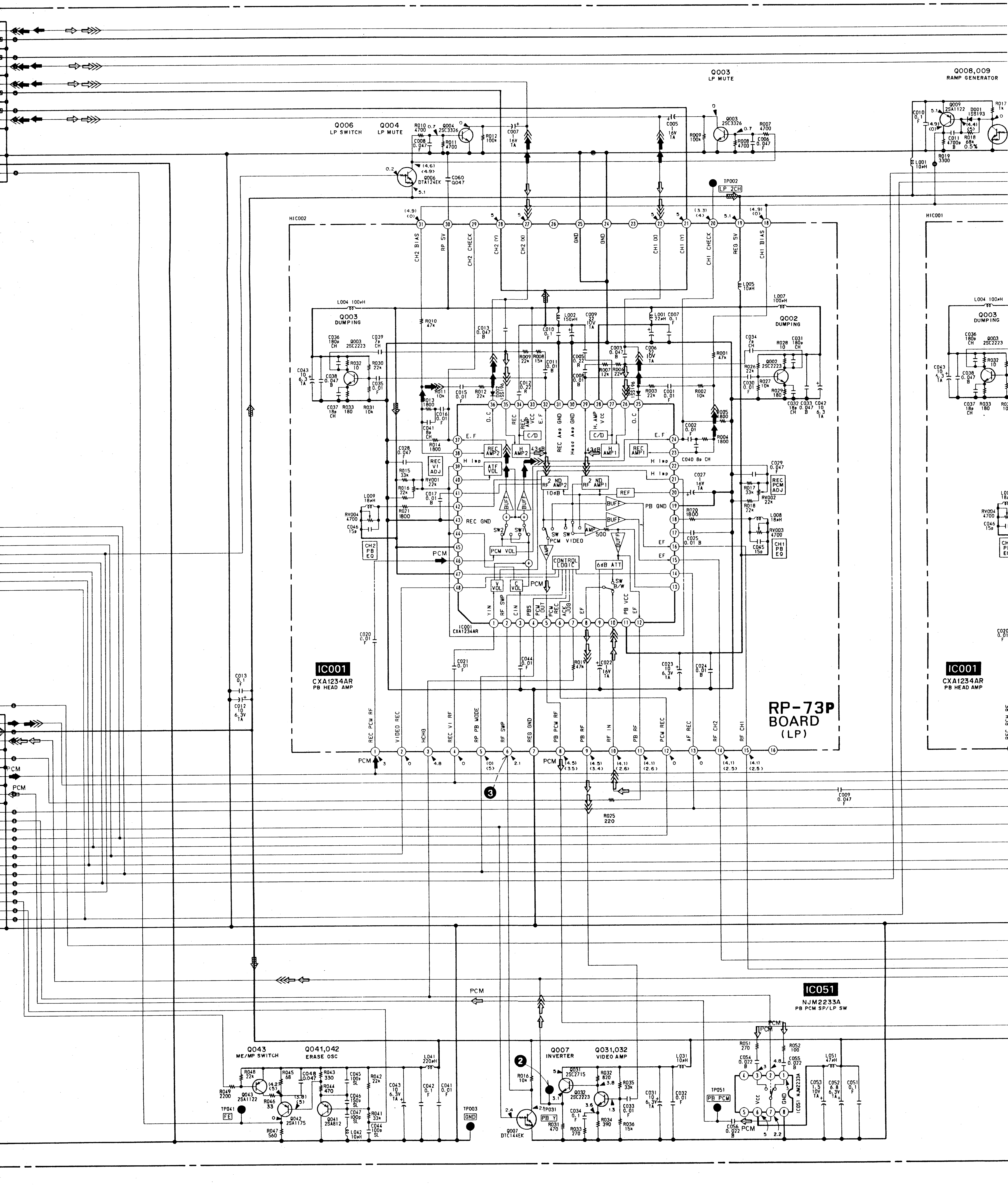
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡≫	➡
PB			⇨≫	⇨

FR-43 (VIDEO HEAD AMPLIFIER), RP-73P (LP HEAD

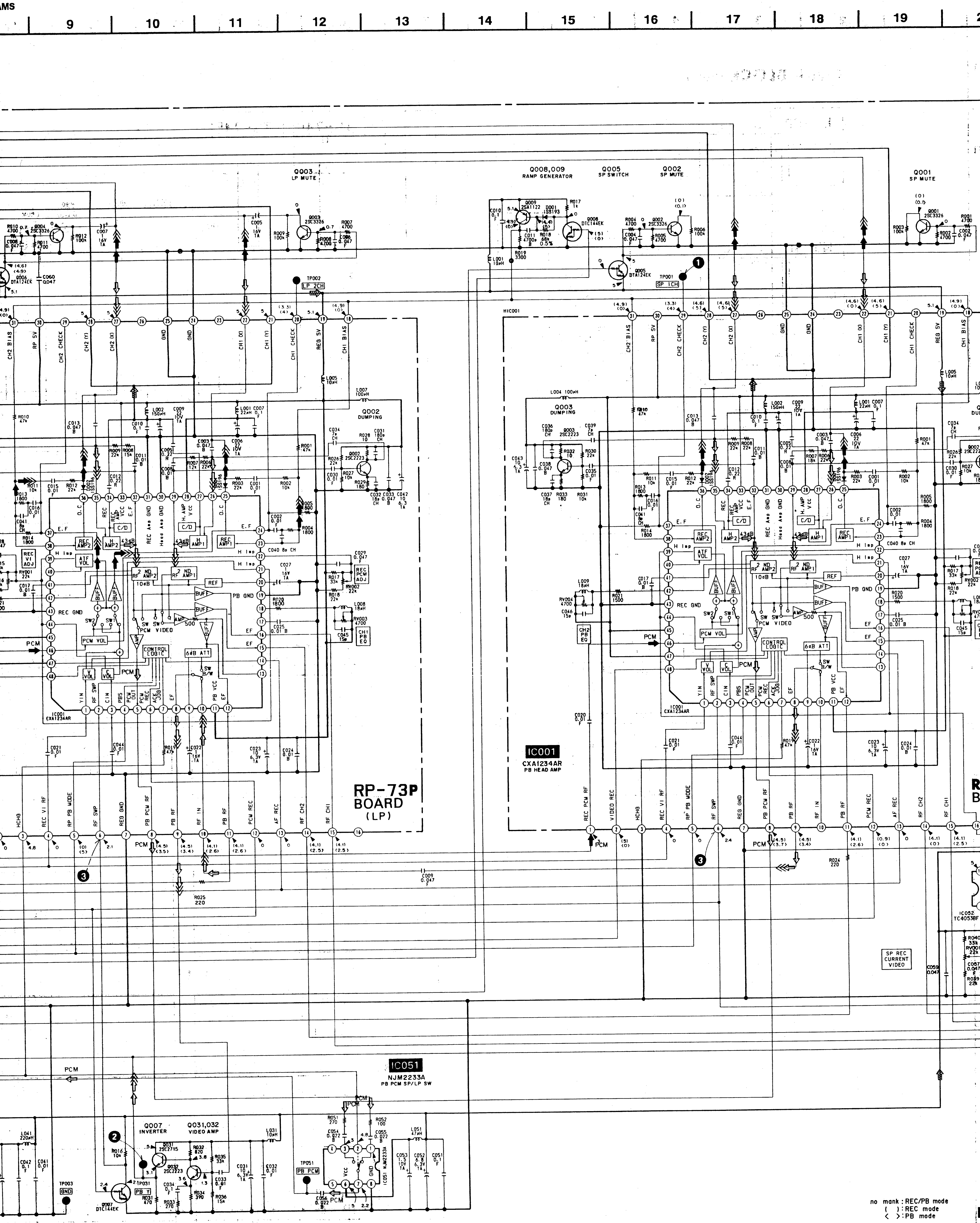
— Ref. No. FR-43 BOARD: 1000 series, RP-73P BOARD: 2000 se


1
2
3
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
CN001 19P
VIDEO HEAD CH1 (SP)
VIDEO HEAD CH2 (SP)
VIDEO HEAD CH1 (LP)
VIDEO HEAD CH2 (LP)
FLYING ERASE HEAD
SP 1CH (G) 1
SP 1CH (X) 2
SP 1CH (Y) 3
SP 2CH (G) 4
SP 2CH (Y) 5
SP 2CH (X) 6
LP 1CH (G) 7
LP 1CH (X) 8
LP 1CH (Y) 9
LP 2CH (G) 10
LP 2CH (Y) 11
LP 2CH (X) 12
GND 13
N.C. 14
N.C. 15
FE (G) 16
FE (Y) 17
FE (X) 18
GND 19
CN003 8P (BLK)
CHECK PIN
RP PB MODE 8
LP PCM REC 7
LP VIDEO REC 6
LP CH SHORT 5
SP CH SHORT 4
SP PCM REC 3
SP VIDEO REC 2
RAMP 1
CN002 26P
TO SE-10P BOARD CN011
(See Page 135)
SP PB RF 1
GND 2
REC VIDEO RF 3
REG 5V 4
PB VIDEO RF 5
GND 6
LP PB RF 7
GND 8
REC PCM RF 9
GND 10
PB PCM RF 11
GND 12
RP AF REC 13
H CHG 14
RP RF SWP 15
LP PCM REC 16
SP PCM REC 17
LP VIDEO REC 18
SP VIDEO REC 19
RP PB MODE 20
SP CH SHORT 21
LP CH SHORT 22
ME/MP 23
FE ON 24
RAMP 25
GND 26
PCM
PCM
CHASSIS GND
09

RD: 2000 series, RP-103P BOARD: 3000 series —

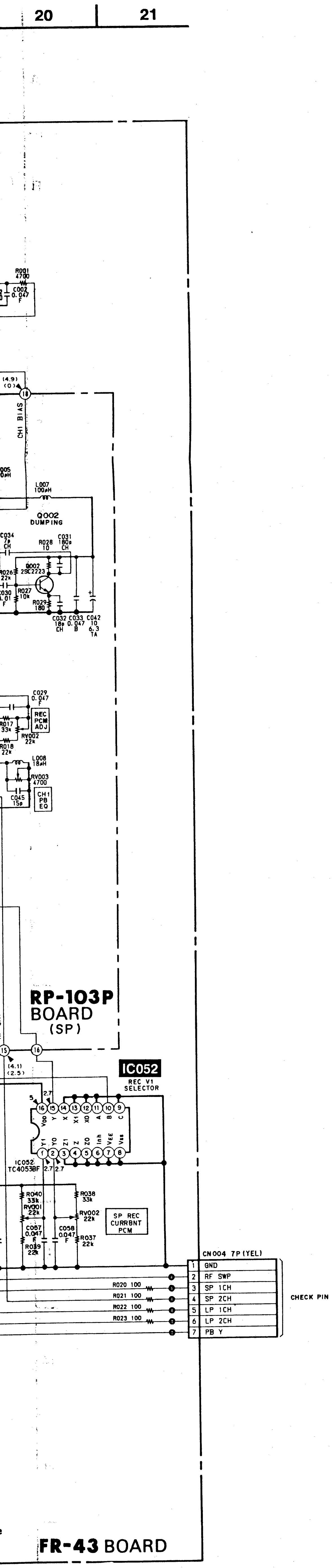

Q006
LP SWITCH
Q004
LP MUTE
Q003
LP MUTE
Q008,009
RAMP GENERATOR
TP002
LP 2CH
HIC002
HIC001
CH2 BIAS
RP SV
CH2 CHECK
CH2 (Y)
CH2 (X)
GND
CH1 (X)
CH1 (Y)
CH1 CHECK
REG 5V
CH1 BIAS
Q003
DUMPING
Q002
DUMPING
REC AMP2
H AMP2
H AMP1
REC AMP1
2 ND RF AMP2
2 ND RF AMP1
ATF VOL
REC VI ADJ
REC PCM ADJ
REF
BUFF
AMP
PCM VOL
CONTROL LOGIC
6dB ATT
REC GND
PB GND
PCM VIDEO
CH2 PB EQ
CH1 PB EQ
IC001
CXA1234AR
PB HEAD AMP
RP-73P
BOARD
(LP)
REC PCM RF
VIDEO REC
HCHG
REC VI RF
RF PB MODE
RF SWP
REG GND
PB PCM RF
PB RF
RF IN
PCM REC
AF REC
RF CH2
RF CH1
PCM
3
2
Q043
ME/MP SWITCH
Q041,042
ERASE OSC
TP041
FE
TP003
GND
Q007
INVERTER
Q031,032
VIDEO AMP
TP031
PB Y
IC051
NJM2233A
PB PCM SP/LP SW
TP051
PB PCM

HEAD A


9
10
11
12
13
14
15
16
17
18
19
Q003 LP MUTE
Q008,009 RAMP GENERATOR
Q005 SP SWITCH
Q002 SP MUTE
Q001 SP MUTE
Q004 2SC3326
Q006 DTA124EK
Q009 2SA1122
D001 1SS193
Q008 DTC144EK
Q005 DTA124EK
TP002 LP 2CH
TP001 SP 1CH
CH2 BIAS
RP 5V
CH2 CHECK
CH2 (Y)
CH2 (X)
GND
CH1 (X)
CH1 (Y)
CH1 CHECK
REG 5V
CH1 BIAS
Q002 DUMPING
Q003 DUMPING
2SC2223
REC AMP2
REC AMP1
H AMP2
H AMP1
2 ND RF AMP2
2 ND RF AMP1
REF
BUF
ATF VOL
REC VI ADJ
REC PCM ADJ
CH1 PB EQ
CH2 PB EQ
PCM VOL
PCM VIDEO
CONTROL LOGIC
6dB ATT
43dB
10dB
REC GND
PB GND
H Imp
E.F
C/D
IC001 CXA1234AR
IC001
CXA1234AR
PB HEAD AMP
RP-73P
BOARD
(LP)
HCH0
REC VI RF
RP PB MODE
RF SWP
REG GND
PB PCM RF
PB RF
RF IN
PCM REC
AF REC
RF CH2
RF CH1
REC PCM RF
VIDEO REC
PCM
IC051
NJM2233A
PB PCM SP/LP SW
Q007 INVERTER
Q031,032 VIDEO AMP
Q031 2SC2715
Q032 2SC2223
Q007 DTC144EK
TP031 PB Y
TP003 GND
TP051 PB PCM
IC052 TC4053BF
SP REC CURRENT VIDEO
①
②
③

no mank : REC/PB mode
( ) : REC mode
〈 〉 : PB mode

HEAD AMP **HEAD AMP**


20
21
R001
4700
C002
0.047
F
(4.9)
(0)
18
CH1 BIAS
005
0μH
L007
100μH
Q002
DUMPING
C034
7p
CH
R028
10
C031
180p
CH
Q002
2SC2223
R026
22k
C030
0.01
F
R027
10k
R029
180
C032
18p
CH
C033
0.047
B
C042
10
6.3
TA
C029
0.047
F
REC
PCM
ADJ
R017
33k
RV002
22k
R018
22k
L008
18μH
RV003
4700
C045
15p
CH1
PB
EQ
RP-103P
BOARD
(SP)
15
16
(4.1)
(2.5)
IC052
REC V1
SELECTOR
5
2.7
16 15 14 13 12 11 10 9
VDD Y X X1 X0 A B C
Y1 Y0 Z1 Z Z0 Inh VEE Vss
1 2 3 4 5 6 7 8
IC052
TC4053BF
2.7 2.7
R040
33k
RV001
22k
C057
0.047
F
R039
22k
C058
0.047
F
R038
33k
RV002
22k
R037
22k
SP REC
CURRBNT
PCM
CN004 7P (YEL)
1 GND
2 RF SWP
3 SP 1CH
4 SP 2CH
5 LP 1CH
6 LP 2CH
7 PB Y
R020 100
R021 100
R022 100
R023 100
CHECK PIN
FR-43 BOARD

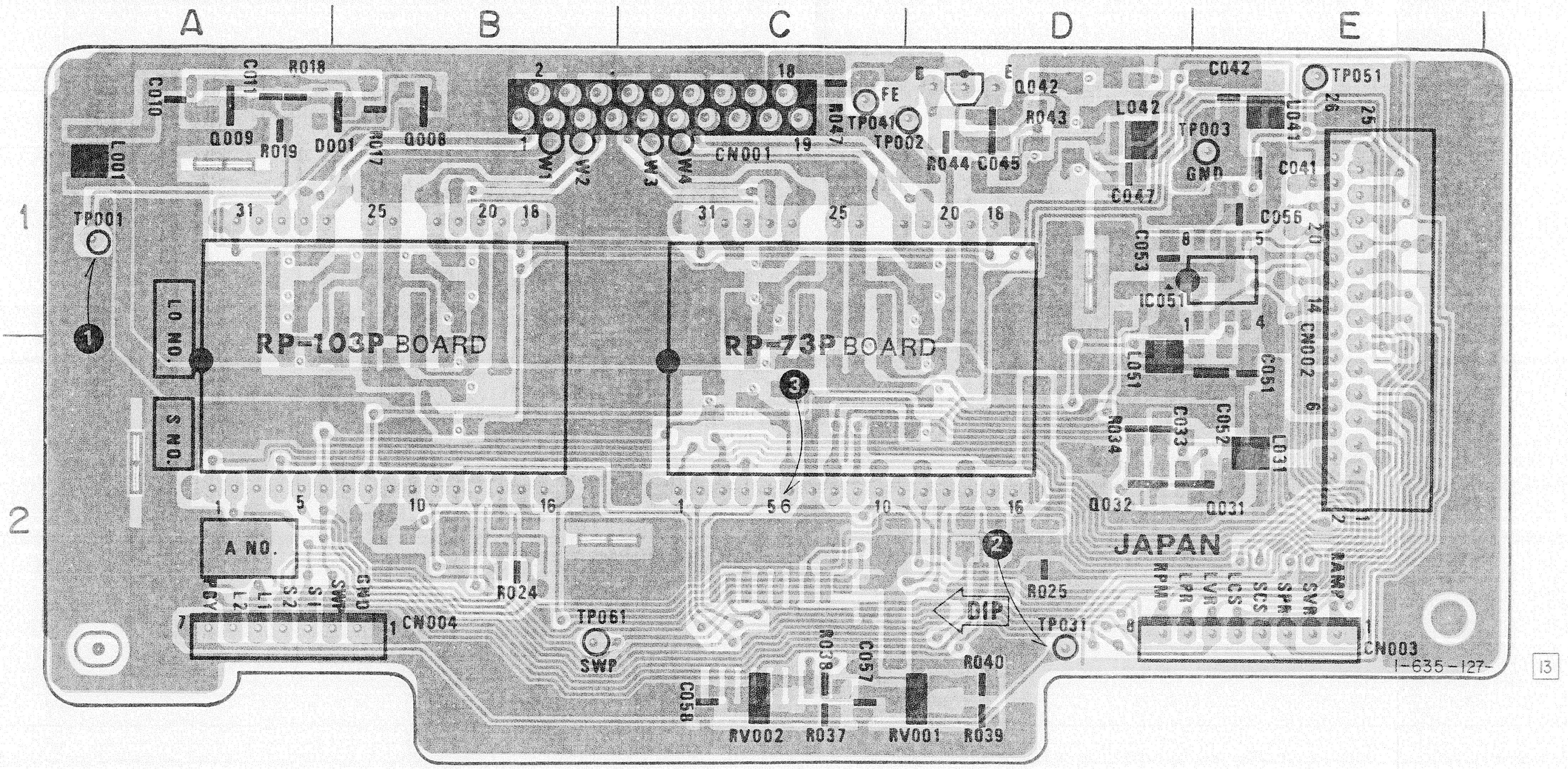
FR-43 (VIDEO HEAD AMPLIFIER), RP-73P (LP HEAD AMPLIFIER), RP-103P (SP HEAD AMPLIFIER) PRINTED WIRING BOARDS

— Ref. No. FR-43 BOARD: 1000 series, RP-73P BOARD: 2000 series, RP-103P BOARD: 3000 series —

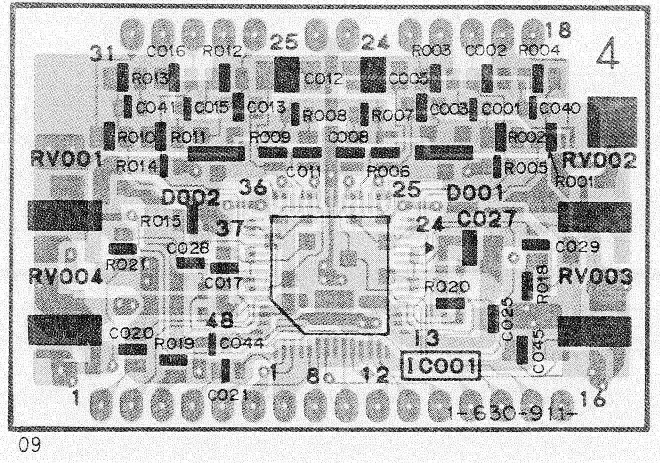
FR-43 BOARD
(COMPONENT
SIDE)

D001	A-1
IC051	E-1
Q008	B-1
Q009	A-1
Q031	E-2
Q032	D-2
Q042	D-1

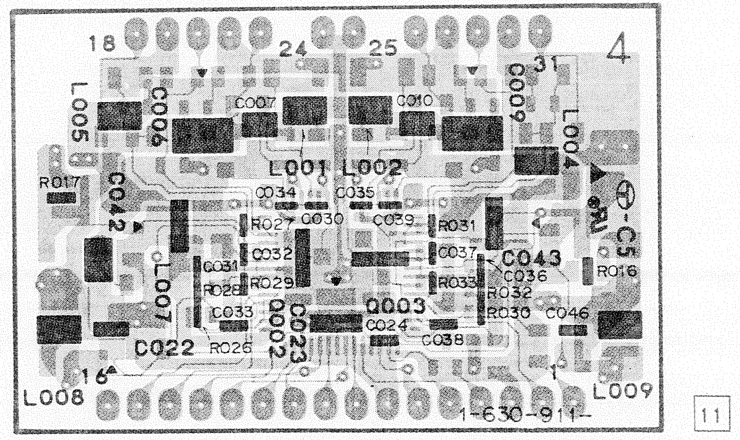
FR-43 BOARD (COMPONENT SIDE)


A
B
C
D
E
1
2
C010
C011
R018
Q009
R019
D001
R017
Q008
L001
TP001
LO NO.
S NO.
A NO.
RP-103P BOARD
RP-73P BOARD
CN001
W1
W2
W3
W4
R047
FE
TP041
TP002
Q042
R043
R044
C045
L042
TP003
GND
C042
TP051
L041
C041
C047
C056
C053
IC051
CN002
L051
C051
R034
C033
C052
L031
Q032
Q031
JAPAN
RAMP
SVR
SPR
SCS
LCS
LVR
LPR
RPR
CN003
R025
DIP
TP031
R040
R039
RV001
C057
R038
R037
RV002
C058
TP061
SWP
R024
CN004
BY
L2
L1
S2
S1
SWP
GND
1-635-127-
13

RP-73P BOARD (COMPONENT SIDE)

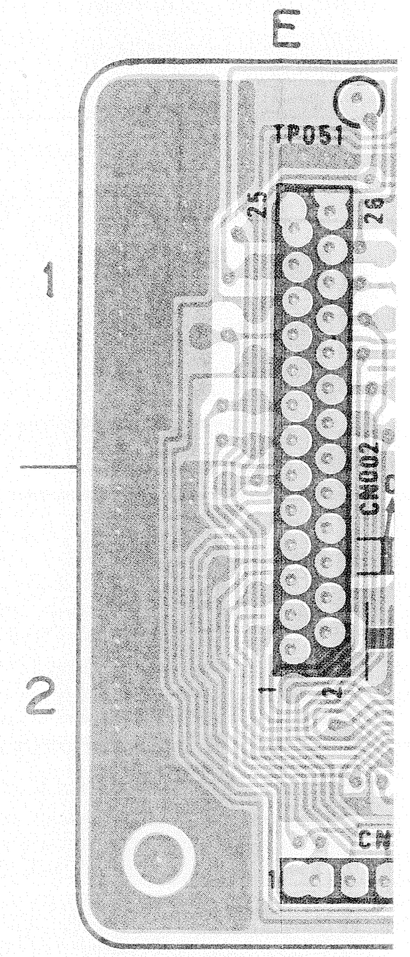

4
31
25
24
18
RV001
RV002
RV004
RV003
D002
D001
C027
IC001
R013
R012
C016
R003
C002
R004
C012
C005
C041
C015
C013
R008
R007
C003
C001
C040
R010
R011
R009
C008
R002
R005
R001
R014
C011
R006
R015
R021
C026
C017
C029
R020
R018
C025
C020
R019
C044
C045
C021
36
37
48
13
12
8
1
16
1-630-911-
11
09

RP-73P BOARD (CONDUCTOR SIDE)

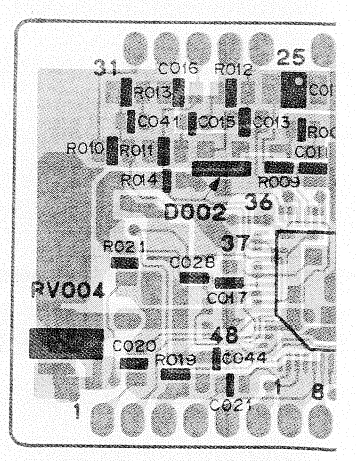

4
18
24
25
31
L005
C006
C007
C010
C009
L004
L001
L002
C034
C035
R017
C042
R027
C030
C039
R031
C037
C043
C036
R016
C5
C031
C032
R028
R029
R033
R032
C033
Q003
Q002
C023
C024
R030
C046
C038
L007
C022
R026
L008
L009
16
1
1-630-911-
11

		〈 DIODE 〉	
D001	8-719-801-41	DIODE	1SS196
D002	8-719-801-41	DIODE	1SS196
		〈 IC 〉	
IC001	8-752-033-00	IC	CXA1234AR
		〈 TRANSISTOR 〉	
Q002	8-729-102-07	TRANSISTOR	2SC2223-F13
Q003	8-729-102-07	TRANSISTOR	2SC2223-F13

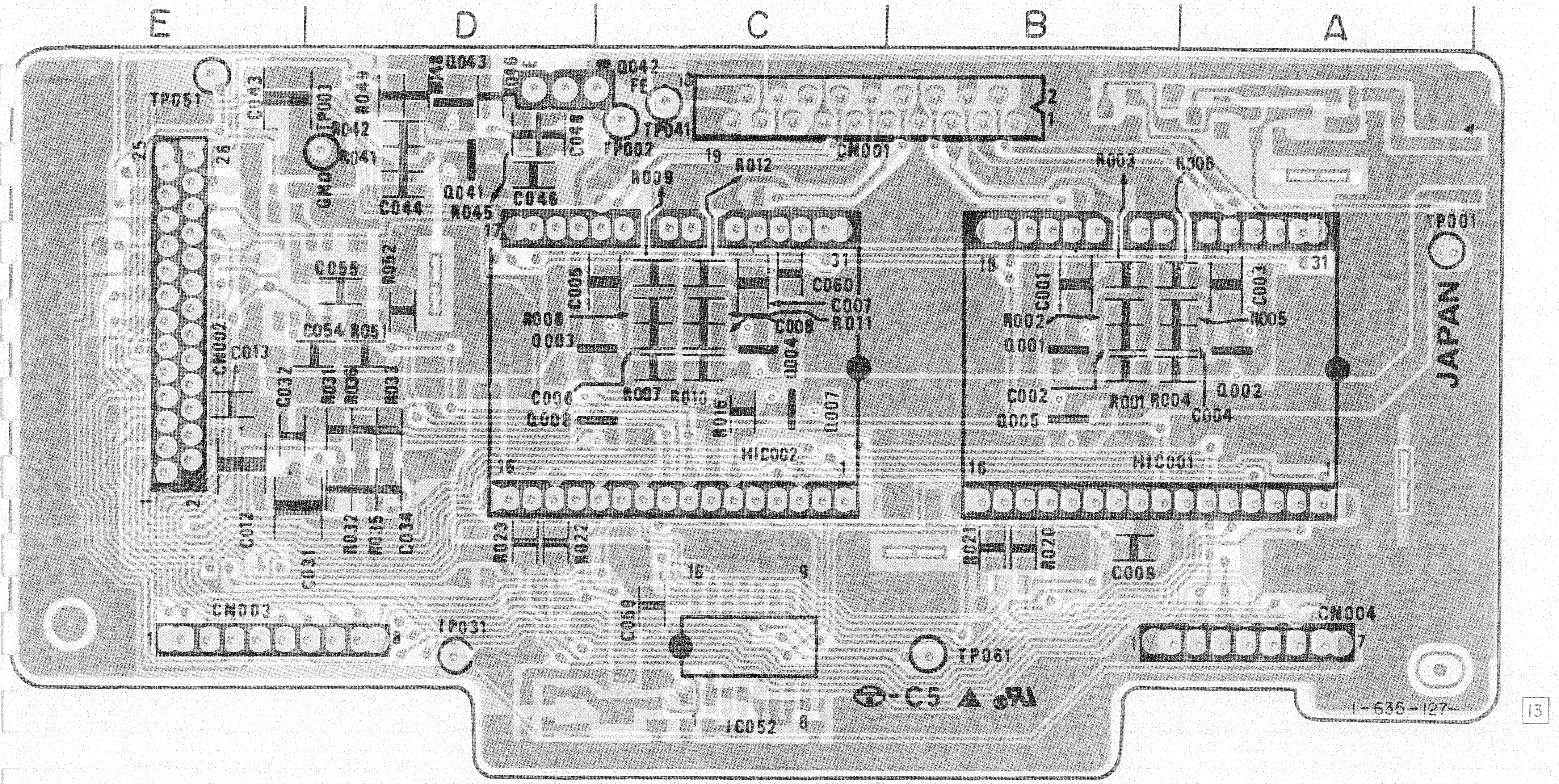
FR-43 BOARD (C


E
1
2
TP051
25
26
CN002
1
2
CN

RP-103P BOARD


31
25
C016
R012
R013
C041
C015
C013
R010
R011
R014
R009
D002
36
37
R021
C028
C017
RV004
48
C020
R019
C044
C021
1
8

FR-43 BOARD (CONDUCTOR SIDE)


E
D
C
B
A
1
2
TP051
C043
TP003
R049
R042
R041
GM001
C044
R048
Q043
Q046
Q042
FE
TP041
C040
TP002
C046
Q041
R045
R009
R012
19
18
CN001
2
1
R003
R006
TP001
JAPAN
25
26
CN002
C013
C055
R052
C054
R051
C032
R031
R036
R033
C012
C031
R032
R035
C034
17
31
C005
C060
C007
R008
C008
R011
Q003
Q004
C006
R007
R010
Q006
R016
Q007
HIC002
16
1
19
C001
C003
R002
R005
Q001
C002
R001
R004
Q002
Q005
C004
HIC001
R023
R022
R021
R020
C009
16
9
C053
CN003
1
8
TP031
TP061
CN004
1
7
IC052
1
8
C5
1-635-127-
13

FR-43 BOARD
(CONDUCTOR
SIDE)

Q001	B-2
Q002	A-2
Q003	D-2
Q004	C-2
Q005	B-2
Q006	D-2
Q007	C-2
Q041	D-1
Q043	D-1

〈 DIODE 〉

D001	8-719-400-18	DIODE	MA152WK

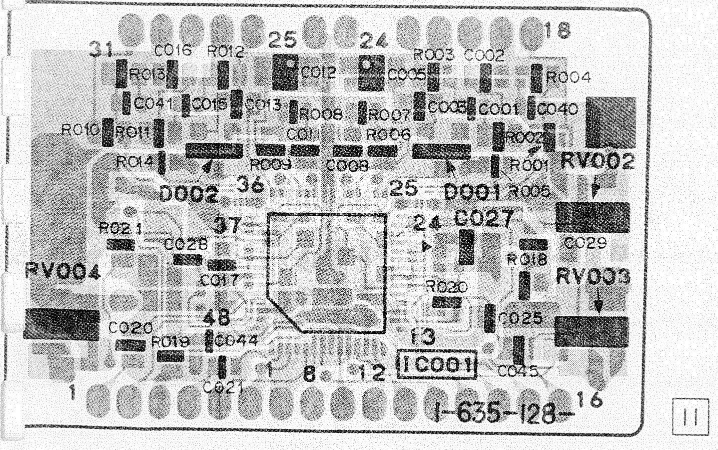
〈 IC 〉

IC051	8-759-710-09	IC	NJM2233AM
IC052	8-759-300-71	IC	HD14053BFP

〈 TRANSISTOR 〉

Q001	8-729-202-38	TRANSISTOR	2SC3326N-A
Q002	8-729-202-38	TRANSISTOR	2SC3326N-A
Q003	8-729-202-38	TRANSISTOR	2SC3326N-A
Q004	8-729-202-38	TRANSISTOR	2SC3326N-A
Q005	8-729-901-05	TRANSISTOR	DTA124EK
Q006	8-729-901-05	TRANSISTOR	DTA124EK
Q007	8-729-901-01	TRANSISTOR	DTC144EK
Q008	8-729-901-01	TRANSISTOR	DTC144EK
Q009	8-729-320-17	TRANSISTOR	2SA1122-CD
Q031	8-729-201-27	TRANSISTOR	2SC2715-Y
Q032	8-729-102-07	TRANSISTOR	2SC2223-F13
Q041	8-729-216-22	TRANSISTOR	2SA1162-G
Q042	8-729-119-76	TRANSISTOR	2SA1175-HFE
Q043	8-729-320-17	TRANSISTOR	2SA1122-CD

P-103P BOARD (COMPONENT SIDE)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C016
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R003
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R013
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C040
R010
R011
R008
R007
R002
C011
R006
R014
R009
C008
R001
RV002
D002
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25
D001
R005
R021
37
24
C027
C028
C029
R018
RV004
C017
R020
RV003
48
C025
C020
R019
C044
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C021
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IC001
C045
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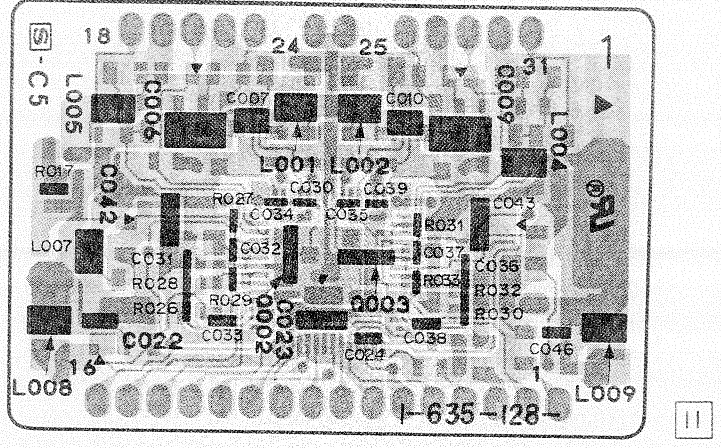
1-635-128-
11

RP-103P BOARD (CONDUCTOR SIDE)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L005
C006
C007
C010
C009
L004
R017
L001
L002
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R027
C030
C039
C043
C034
C035
L007
C032
R031
C037
C031
C036
R028
R033
R032
R026
R029
Q002
Q003
R030
C022
C033
C023
C024
C038
C046
L008
16
1
L009
1-635-128-
11

〈 DIODE 〉

D001	8-719-801-41	DIODE	1SS196
D002	8-719-801-41	DIODE	1SS196

〈 IC 〉

IC001	8-752-033-00	IC	CXA1234AR

〈 TRANSISTOR 〉

Q002	8-729-102-07	TRANSISTOR	2SC2223-F13
Q003	8-729-102-07	TRANSISTOR	2SC2223-F13

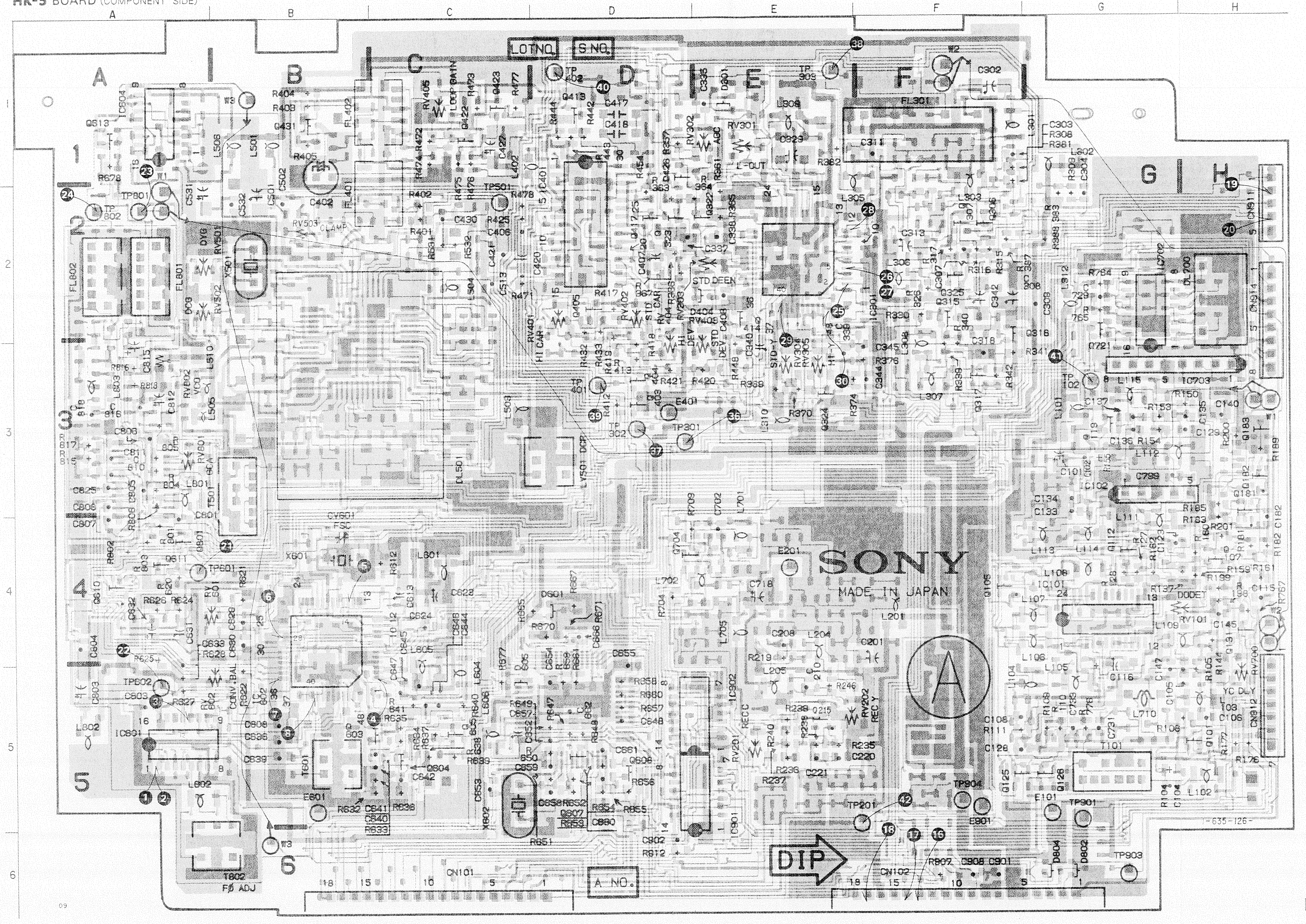
HK-5 (CHROMA VIDEO PROCESS, Y VIDEO PROCESS, Hi8/STD SELECT) PRINTED WIRING BOARD

— Ref. No. HK-5 BOARD: 4000 series —

HK-5 BOARD (COMPONENT SIDE)

D301	E-1
D404	E-2
D601	D-4
D605	C-5
D802	G-6
D804	G-6
IC101	G-4
IC102	G-3
IC301	F-2
IC401	D-1
IC601	A-5
IC602	B-5
IC702	G-2
IC703	H-3
IC901	E-5
IC902	E-5
Q101	H-5
Q105	F-4
Q107	H-4
Q112	G-4
Q119	G-3
Q125	F-5
Q126	G-5
Q131	H-4
Q181	H-3
Q182	H-3
Q215	E-5
Q306	F-2
Q307	F-2
Q315	F-2
Q316	G-2
Q317	F-3
Q322	E-2
Q323	D-2
Q324	E-3
Q325	F-2
Q403	D-3
Q404	D-3
Q405	D-2
Q413	D-1
Q414	E-2
Q417	D-2
Q422	C-1
Q423	C-1
Q426	D-1
Q431	B-1
Q603	B-5
Q604	C-5
Q605	C-5
Q607	D-5
Q608	D-5
Q610	A-4
Q611	A-4
Q704	D-4
Q721	G-3
Q801	A-4

HK-5 BOARD (COMPONENT SIDE)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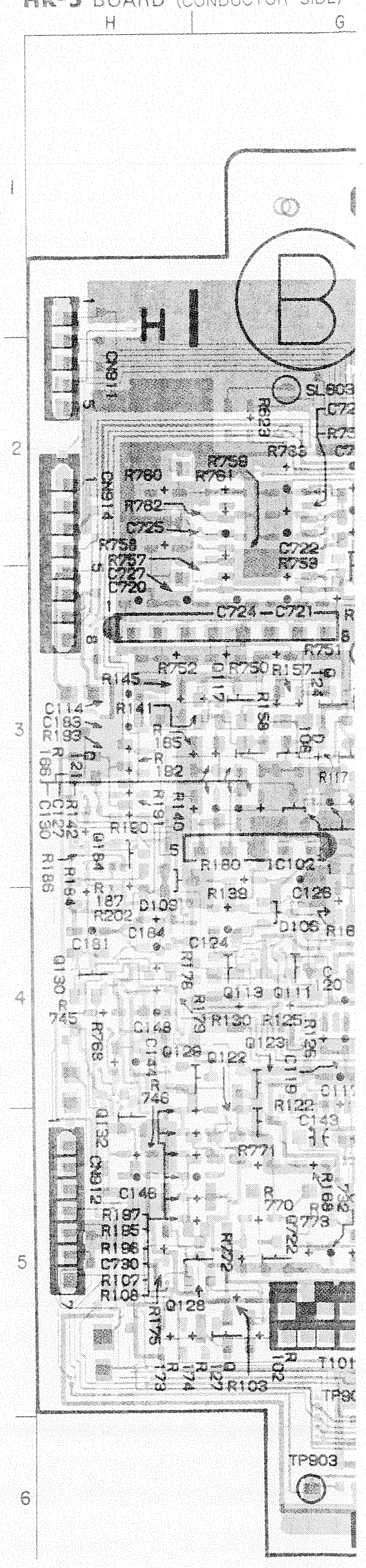
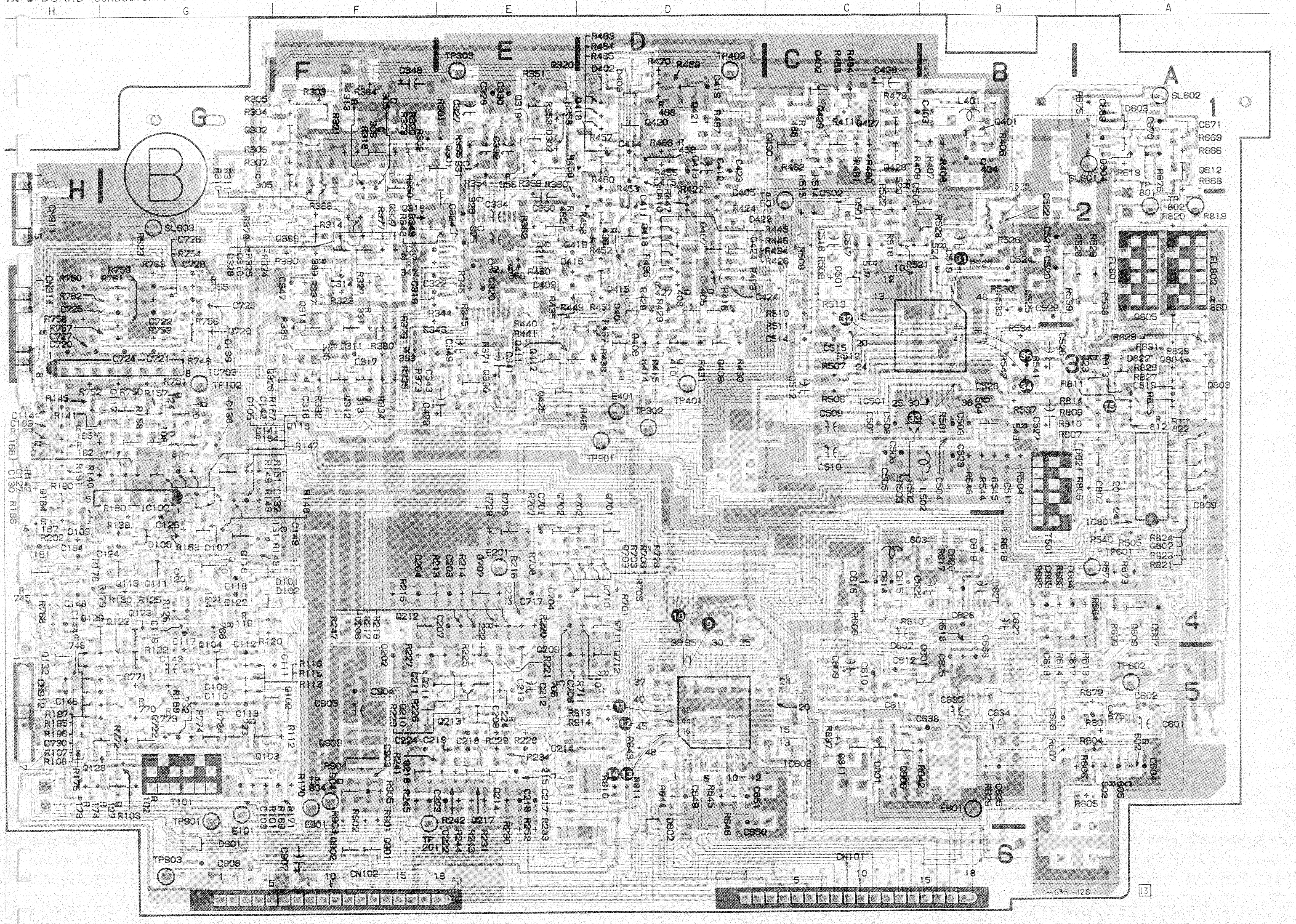
LOT NO.
S NO.
SONY
MADE IN JAPAN
DIP
A NO.
CN101
CN102
T602
FØ ADJ
1-635-126-

HK-5 BOARD (CONDUCTOR SIDE)



VIDEO VIDEO

HK-5 BOARD (CONDUCTOR SIDE)



HK-5 BOARD
(CONDUCTOR
SIDE)

Ref.	Location
D101	F-4
D102	F-4
D105	G-3
D106	G-4
D107	F-4
D108	G-3
D109	H-4
D302	E-1
D401	D-2
D402	D-1
D403	D-1
D405	D-2
D501	C-2
D602	D-5
D603	A-1
D604	A-1
D801	C-5
D821	A-3
D822	A-3
D901	G-6
IC501	C-3
IC603	C-5
IC801	A-4
Q102	F-5
Q103	G-5
Q104	G-4
Q110	G-4
Q111	G-4
Q113	H-4
Q116	F-4
Q117	G-3
Q118	F-3
Q120	G-3
Q121	H-3
Q122	G-4
Q123	G-4
Q127	G-5
Q128	H-5
Q129	H-4
Q130	H-4
Q132	H-5
Q183	H-3
Q184	H-3
Q209	E-4
Q210	F-5
Q211	F-5
Q212	F-4
Q213	E-5
Q214	E-5
Q217	E-5
Q218	F-5
Q301	E-1
Q302	G-1
Q305	G-1
Q309	F-1
Q310	G-2
Q311	F-3
Q312	F-3
Q313	F-3
Q314	F-2
Q318	F-2
Q319	E-1
Q320	E-1
Q321	E-2
Q326	G-3
Q327	F-2
Q328	G-2
Q330	E-3
Q389	F-2
Q401	B-1
Q402	C-1
Q406	D-3
Q407	D-2
Q408	D-2
Q409	D-3
Q410	D-3
Q411	E-3
Q412	E-3
Q415	D-2
Q416	D-2
Q418	D-1
Q419	D-2
Q420	D-1
Q421	D-1
Q424	D-2
Q425	E-3
Q427	C-1
Q428	C-1
Q429	C-1
Q430	C-1
Q501	C-2
Q502	C-1
Q503	C-2
Q504	B-3
Q601	B-5
Q606	C-5
Q609	A-4
Q612	A-1
Q613	A-1
Q701	D-3
Q702	D-3
Q703	D-4
Q706	E-3
Q707	E-4
Q710	D-4
Q711	D-4
Q712	D-5
Q720	G-2
Q722	G-5
Q723	G-5
Q724	G-5
Q802	A-4
Q803	A-3
Q804	A-3
Q805	A-2
Q811	C-5
Q901	F-6
Q902	F-6
Q903	F-5
Q904	F-5

〈 DIODE 〉

D101	8-719-400-18	DIODE	MA152WK
D102	8-719-400-18	DIODE	MA152WK
D105	8-719-800-76	DIODE	1SS226
D106	8-719-400-18	DIODE	MA152WK
D107	8-719-400-18	DIODE	MA152WK
D108	8-719-400-18	DIODE	MA152WK
D109	8-719-400-18	DIODE	MA152WK
D301	8-719-400-18	DIODE	MA152WK
D302	8-719-400-18	DIODE	MA152WK
D401	8-719-400-18	DIODE	MA152WK
D402	8-719-400-18	DIODE	MA152WK
D403	8-719-400-18	DIODE	MA152WK
D404	8-719-400-18	DIODE	MA152WK
D405	8-719-400-18	DIODE	MA152WK
D501	8-719-400-18	DIODE	MA152WK
D601	8-719-800-76	DIODE	1SS226
D602	8-719-400-18	DIODE	MA152WK
D603	8-719-400-18	DIODE	MA152WK
D604	8-719-400-18	DIODE	MA152WK
D605	8-719-400-18	DIODE	MA152WK
D801	8-719-400-18	DIODE	MA152WK
D802	8-719-400-18	DIODE	MA152WK
D804	8-719-400-18	DIODE	MA152WK
D821	8-719-400-18	DIODE	MA152WK
D822	8-719-800-76	DIODE	1SS226
D823	8-719-800-76	DIODE	1SS226
D901	8-719-400-18	DIODE	MA152WK

〈 IC 〉

IC101	8-759-233-94	IC	TA8607F
IC102	8-759-925-60	IC	BA401
IC301	8-752-002-XX	IC	CX20030-T1
IC401	8-752-031-01	IC	CXA1047M
IC501	8-752-003-12	IC	CX20031
IC601	8-752-202-10	IC	CX22021
IC602	8-752-003-22	IC	CX20032
IC603	8-752-305-47	IC	CX23054
IC604	8-759-009-51	IC	MC14538BF
IC702	8-759-012-00	IC	MC10H116M
IC703	8-752-006-12	IC	CX20061
IC801	8-759-202-67	IC	CX20117
IC901	8-759-925-74	IC	SN74HC04ANS
IC902	8-759-925-74	IC	SN74HC04ANS

〈 TRANSISTOR 〉

Q101	8-729-200-86	TRANSISTOR	2SC2714-O
Q102	8-729-901-04	TRANSISTOR	DTA114EK
Q103	8-729-200-86	TRANSISTOR	2SC2714-O
Q104	8-729-901-01	TRANSISTOR	DTC144EK
Q105	8-729-904-07	TRANSISTOR	FMG2
Q107	8-729-201-27	TRANSISTOR	2SC2715-Y
Q110	8-729-901-01	TRANSISTOR	DTC144EK
Q111	8-729-200-86	TRANSISTOR	2SC2714-O
Q112	8-729-901-01	TRANSISTOR	DTC144EK
Q113	8-729-200-86	TRANSISTOR	2SC2714-O
Q116	8-729-201-27	TRANSISTOR	2SC2715-Y
Q117	8-729-200-86	TRANSISTOR	2SC2714-O
Q118	8-729-200-86	TRANSISTOR	2SC2714-O
Q119	8-729-200-86	TRANSISTOR	2SC2714-O
Q120	8-729-200-86	TRANSISTOR	2SC2714-O
Q121	8-729-201-27	TRANSISTOR	2SC2715-Y
Q122	8-729-901-01	TRANSISTOR	DTC144EK
Q123	8-729-901-01	TRANSISTOR	DTC144EK
Q124	8-729-901-06	TRANSISTOR	DTA144EK
Q125	8-729-901-01	TRANSISTOR	DTC144EK

Q126	8-729-201-27	TRANSISTOR	2SC2715-Y
Q127	8-729-201-27	TRANSISTOR	2SC2715-Y
Q128	8-729-202-38	TRANSISTOR	2SC3326N-A
Q129	8-729-201-27	TRANSISTOR	2SC2715-Y
Q130	8-729-201-27	TRANSISTOR	2SC2715-Y
Q131	8-729-216-22	TRANSISTOR	2SA1162-G
Q132	8-729-201-27	TRANSISTOR	2SC2715-Y
Q181	8-729-907-46	TRANSISTOR	IMZ1
Q182	8-729-903-10	TRANSISTOR	FMW1
Q183	8-729-200-86	TRANSISTOR	2SC2714-O
Q184	8-729-216-22	TRANSISTOR	2SA1162-G
Q209	8-729-200-86	TRANSISTOR	2SC2714-O
Q210	8-729-200-86	TRANSISTOR	2SC2714-O
Q211	8-729-200-86	TRANSISTOR	2SC2714-O
Q212	8-729-901-01	TRANSISTOR	DTC144EK
Q213	8-729-901-06	TRANSISTOR	DTA144EK
Q214	8-729-200-86	TRANSISTOR	2SC2714-O
Q215	8-729-902-96	TRANSISTOR	FMS1
Q217	8-729-200-86	TRANSISTOR	2SC2714-O
Q218	8-729-200-86	TRANSISTOR	2SC2714-O
Q301	8-729-201-27	TRANSISTOR	2SC2715-Y
Q302	8-729-201-27	TRANSISTOR	2SC2715-Y
Q305	8-729-201-27	TRANSISTOR	2SC2715-Y
Q306	8-729-201-27	TRANSISTOR	2SC2715-Y
Q307	8-729-201-27	TRANSISTOR	2SC2715-Y
Q309	8-729-201-27	TRANSISTOR	2SC2715-Y
Q310	8-729-201-27	TRANSISTOR	2SC2715-Y
Q311	8-729-201-27	TRANSISTOR	2SC2715-Y
Q312	8-729-901-06	TRANSISTOR	DTA144EK
Q313	8-729-216-22	TRANSISTOR	2SA1162-G
Q314	8-729-201-27	TRANSISTOR	2SC2715-Y
Q315	8-729-201-27	TRANSISTOR	2SC2715-Y
Q316	8-729-901-01	TRANSISTOR	DTC144EK
Q317	8-729-201-27	TRANSISTOR	2SC2715-Y
Q318	8-729-901-06	TRANSISTOR	DTA144EK
Q319	8-729-201-27	TRANSISTOR	2SC2715-Y
Q320	8-729-901-01	TRANSISTOR	DTC144EK
Q321	8-729-901-01	TRANSISTOR	DTC144EK
Q322	8-729-216-22	TRANSISTOR	2SA1162-G
Q323	8-729-901-01	TRANSISTOR	DTC144EK
Q324	8-729-901-01	TRANSISTOR	DTC144EK
Q325	8-729-901-06	TRANSISTOR	DTA144EK
Q326	8-729-901-06	TRANSISTOR	DTA144EK
Q327	8-729-201-27	TRANSISTOR	2SC2715-Y
Q328	8-729-201-27	TRANSISTOR	2SC2715-Y
Q330	8-729-901-06	TRANSISTOR	DTA144EK
Q389	8-729-201-27	TRANSISTOR	2SC2715-Y
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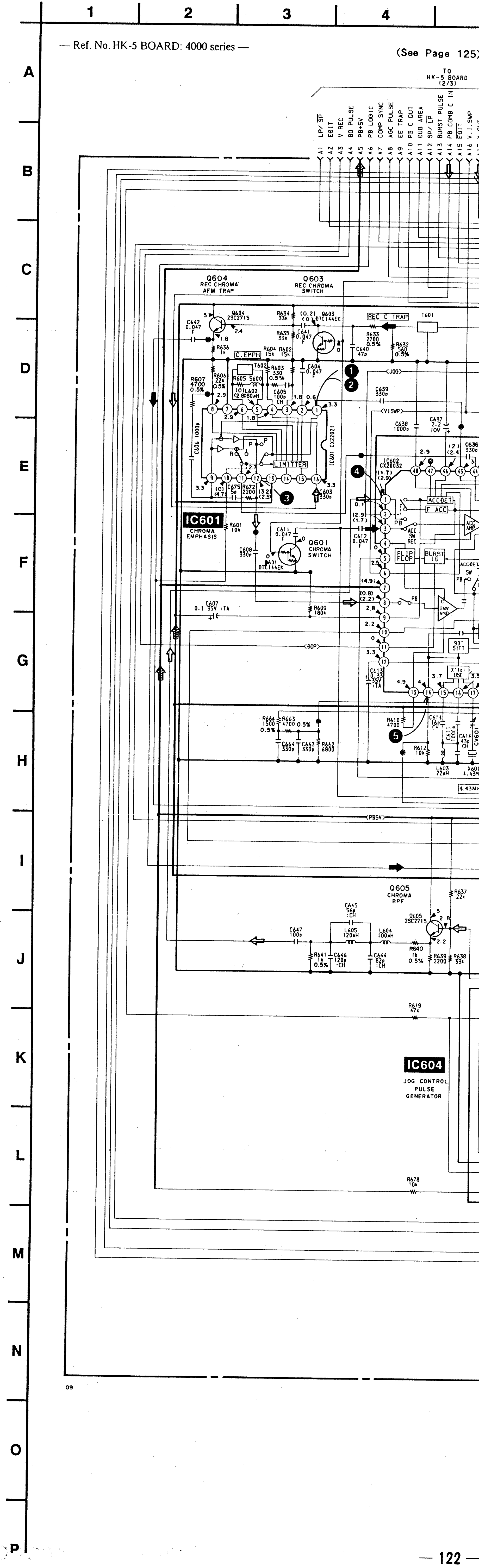
Q402	8-729-201-27	TRANSISTOR	2SC2715-Y
Q403	8-729-901-01	TRANSISTOR	DTC144EK
Q404	8-729-901-01	TRANSISTOR	DTC144EK
Q405	8-729-901-06	TRANSISTOR	DTA144EK
Q406	8-729-201-27	TRANSISTOR	2SC2715-Y
Q407	8-729-216-22	TRANSISTOR	2SA1162-G
Q408	8-729-216-22	TRANSISTOR	2SA1162-G
Q409	8-729-201-27	TRANSISTOR	2SC2715-Y
Q410	8-729-216-22	TRANSISTOR	2SA1162-G
Q411	8-729-901-01	TRANSISTOR	DTC144EK
Q412	8-729-901-01	TRANSISTOR	DTC144EK
Q413	8-729-901-01	TRANSISTOR	DTC144EK
Q414	8-729-201-27	TRANSISTOR	2SC2715-Y
Q415	8-729-216-22	TRANSISTOR	2SA1162-G
Q416	8-729-216-22	TRANSISTOR	2SA1162-G
Q417	8-729-901-01	TRANSISTOR	DTC144EK
Q418	8-729-201-27	TRANSISTOR	2SC2715-Y
Q419	8-729-201-27	TRANSISTOR	2SC2715-Y
Q420	8-729-202-38	TRANSISTOR	2SC3326N-A
Q421	8-729-202-38	TRANSISTOR	2SC3326N-A
Q422	8-729-201-27	TRANSISTOR	2SC2715-Y
Q423	8-729-201-27	TRANSISTOR	2SC2715-Y
Q424	8-729-901-01	TRANSISTOR	DTC144EK
Q425	8-729-201-27	TRANSISTOR	2SC2715-Y
Q426	8-729-201-27	TRANSISTOR	2SC2715-Y
Q427	8-729-216-22	TRANSISTOR	2SA1162-G
Q428	8-729-216-22	TRANSISTOR	2SA1162-G
Q429	8-729-901-01	TRANSISTOR	DTC144EK
Q430	8-729-901-01	TRANSISTOR	DTC144EK
Q431	8-729-216-22	TRANSISTOR	2SA1162-G
Q501	8-729-901-06	TRANSISTOR	DTA144EK
Q502	8-729-901-01	TRANSISTOR	DTC144EK
Q503	8-729-901-00	TRANSISTOR	DTC124EK
Q504	8-729-201-27	TRANSISTOR	2SC2715-Y
Q601	8-729-901-01	TRANSISTOR	DTC144EK
Q603	8-729-901-01	TRANSISTOR	DTC144EK
Q604	8-729-201-27	TRANSISTOR	2SC2715-Y
Q605	8-729-201-27	TRANSISTOR	2SC2715-Y
Q606	8-729-901-01	TRANSISTOR	DTC144EK
Q607	8-729-201-27	TRANSISTOR	2SC2715-Y
Q608	8-729-216-22	TRANSISTOR	2SA1162-G
Q609	8-729-901-00	TRANSISTOR	DTC124EK
Q610	8-729-904-04	TRANSISTOR	FMS2
Q611	8-729-201-27	TRANSISTOR	2SC2715-Y
Q612	8-729-201-27	TRANSISTOR	2SC2715-Y
Q613	8-729-901-01	TRANSISTOR	DTC144EK
Q701	8-729-201-27	TRANSISTOR	2SC2715-Y
Q702	8-729-202-38	TRANSISTOR	2SC3326N-A
Q703	8-729-202-38	TRANSISTOR	2SC3326N-A
Q704	8-729-216-22	TRANSISTOR	2SA1162-G
Q706	8-729-201-27	TRANSISTOR	2SC2715-Y
Q707	8-729-201-27	TRANSISTOR	2SC2715-Y
Q710	8-729-901-01	TRANSISTOR	DTC144EK
Q711	8-729-901-01	TRANSISTOR	DTC144EK
Q712	8-729-901-01	TRANSISTOR	DTC144EK
Q720	8-729-200-86	TRANSISTOR	2SC2714-O
Q721	8-729-200-86	TRANSISTOR	2SC2714-O
Q722	8-729-200-86	TRANSISTOR	2SC2714-O
Q723	8-729-201-27	TRANSISTOR	2SC2715-Y
Q724	8-729-901-01	TRANSISTOR	DTC144EK
Q801	8-729-920-08	TRANSISTOR	DTC124TK
Q802	8-729-201-27	TRANSISTOR	2SC2715-Y
Q803	8-729-201-27	TRANSISTOR	2SC2715-Y
Q804	8-729-201-27	TRANSISTOR	2SC2715-Y
Q805	8-729-216-22	TRANSISTOR	2SA1162-G
Q811	8-729-901-01	TRANSISTOR	DTC144EK
Q901	8-729-901-01	TRANSISTOR	DTC144EK
Q902	8-729-901-01	TRANSISTOR	DTC144EK
Q903	8-729-104-25	TRANSISTOR	2SB804-AV
Q904	8-729-201-27	TRANSISTOR	2SC2715-Y

HK-5 (CHROMA VIDEO PROCESS) SCHEMATIC DIAGRAM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P
— Ref. No. HK-5 BOARD: 4000 series —
(See Page 125)
TO HK-5 BOARD (2/3)
A1 LP/SP
A2 EDIT
A3 V REC
A4 DO PULSE
A5 PB+5V
A6 PB LOGIC
A7 COMP SYNC
A8 AGC PULSE
A9 EE TRAP
A10 PB C OUT
A11 DUB AREA
A12 SP/LP
A13 BURST PULSE
A14 PB COMB C IN
A15 EDIT
A16 V.I.SWP
Q604 REC CHROMA AFM TRAP
Q603 REC CHROMA SWITCH
REC C TRAP
T601
C.EMPH
LIMITTER
IC601 CX22021
IC601 CHROMA EMPHASIS
Q601 CHROMA SWITCH
IC602 CX20032
ACCDET
F ACC
FLIP FLOP
BURST ID
INV AMP
90° SIFT
X'tal VCO
4.43MHz
Q605 CHROMA BPF
IC604 JOG CONTROL PULSE GENERATOR
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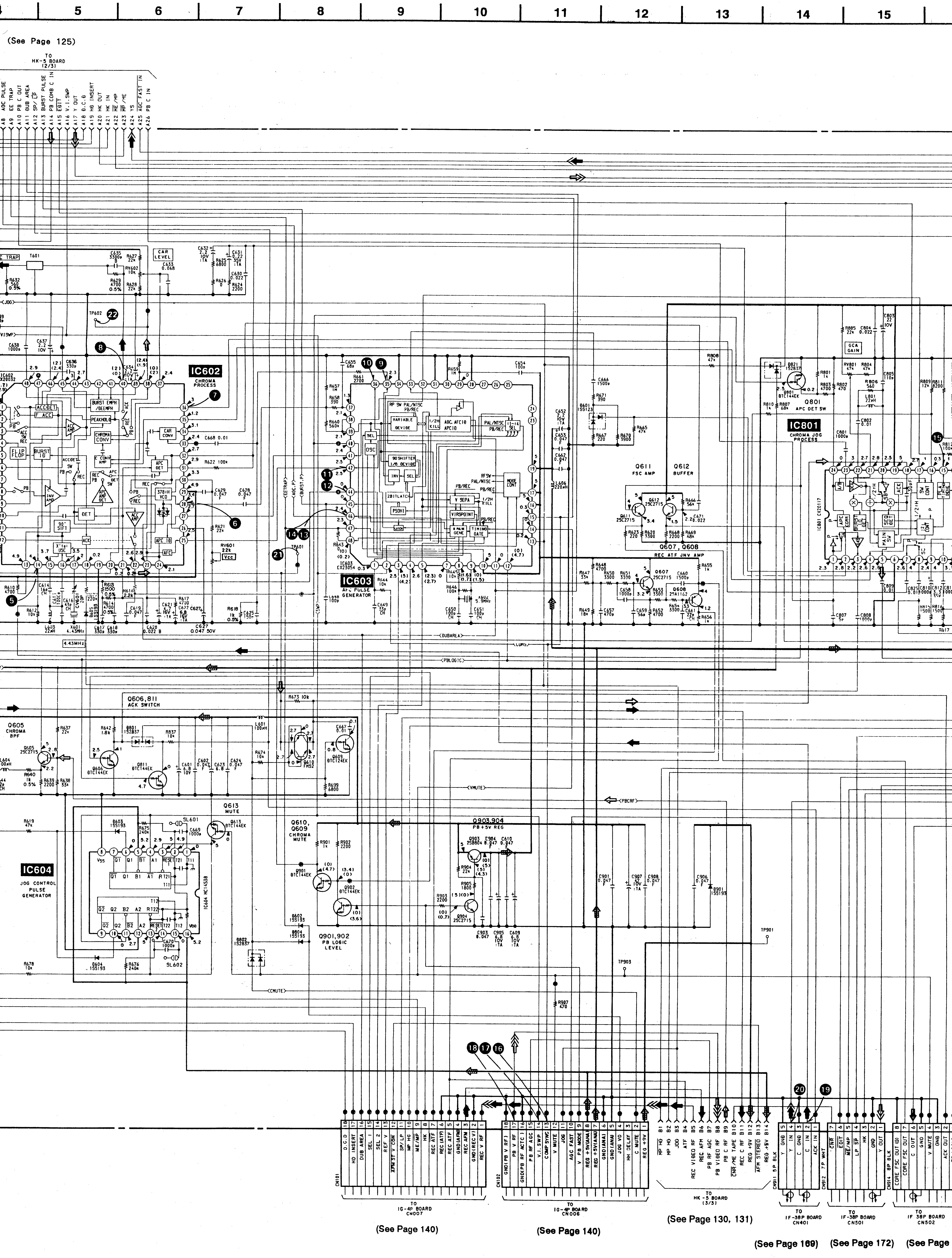
<PB5V>
09

- Refer to page 117 for Printed Wiring Board.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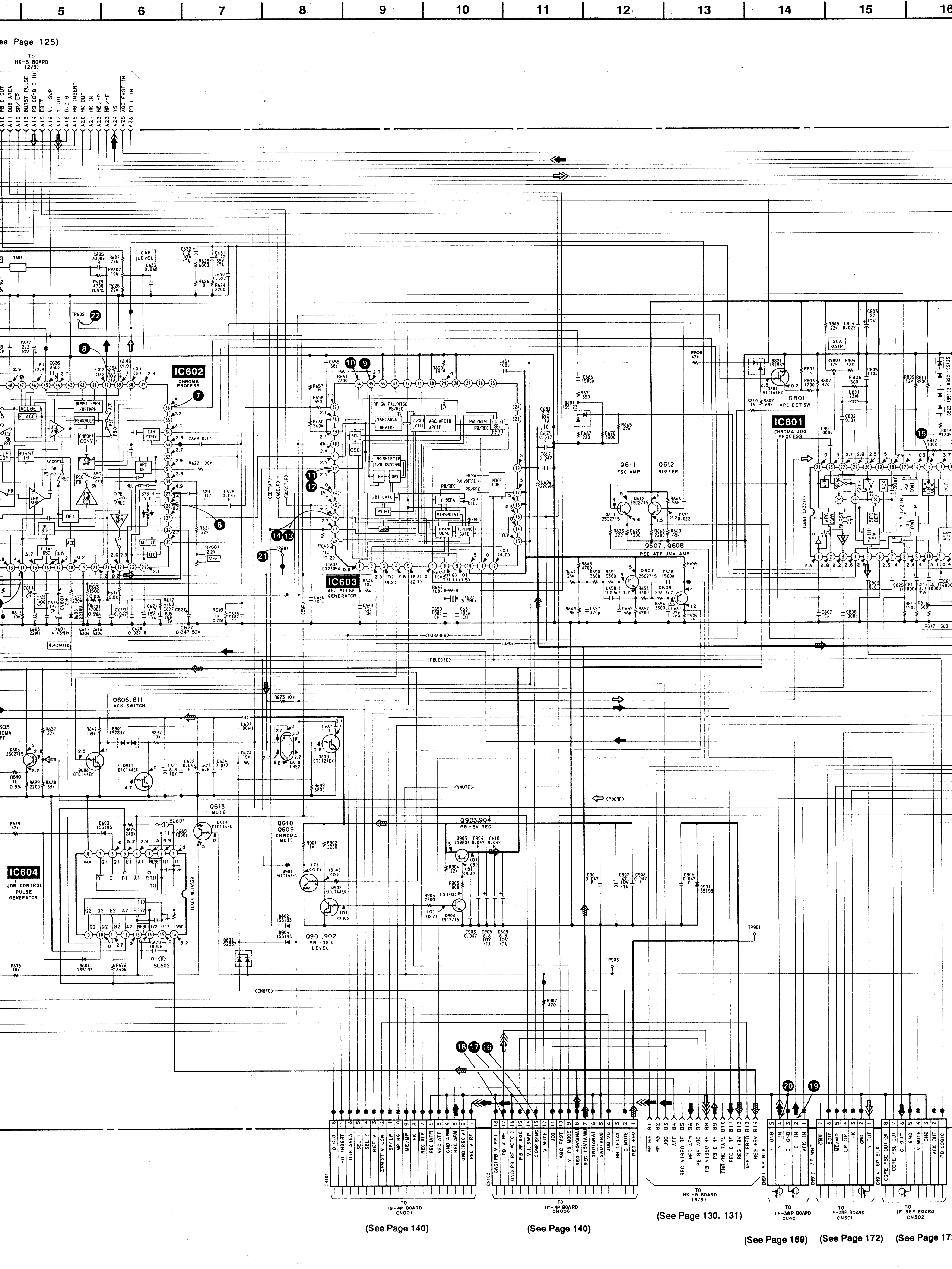
(See Page 125)
TO HK-5 BOARD (2/3)
A8 AGC PULSE
A9 EE TRAP
A10 PB C OUT
A11 DUB AREA
A12 SP/LP
A13 BURST PULSE
A14 PB COMB C IN
A15 EDIT
A16 V.I.SWP
A17 Y OUT
A18 D.C.O
A19 HD INSERT
A20 HK OUT
A21 HK IN
A22 ME/MP
A23 MP/ME
A24 YS
A25 AGC FAST IN
A26 PB C IN
IC602
CHROMA PROCESS
IC603
CX23054
AFC PULSE GENERATOR
IC801
CX20117
CHROMA JOG PROCESS
IC604
MC14538
JOG CONTROL PULSE GENERATOR
Q605
CHROMA BPF
Q606,811
ACK SWITCH
Q613
MUTE
Q610, Q609
CHROMA MUTE
Q903,904
PB +5V REG
Q901,902
PB LOGIC LEVEL
Q611
FSC AMP
Q612
BUFFER
Q607, Q608
REC ATF JNV AMP
Q801
APC DET SW
TP601
TP602
TP901
TP903
RV601
RV602
GCA GAIN
CAR LEVEL
4.43MHz
<JOG>
<VISWP>
<DUBARLA>
<CDMS>
<PBLOGIC>
<VMUTE>
<PBCRF>
<CMUTE>
CN101
CN102
D.C.O
HD INSERT
DUB AREA
SEL 2
SEL 1
REF V
AFM ST V CON
SP/LP
MP HG
ME/MP
HK
REC ATF
REC ATF
GND(AFM)
REC AFM
GND(REC V)
REC V RF
GND(PB V RF)
PB V RF
GND(PB RF ACTC)
PB RF AGC
V.I. SWP
COMP SYNC
V MUTE
JOG
AGC FAST
V PB MODE
REG +5V(ANA)
REG +5V(ANA)
GND(ANA)
GND(ANA)
JOG VD
HH DELAY
C MUTE
REG +5V
HP HG
HP HG
JOG
ATF
REC VIDEO RF
REC AFM
PB RF AGC
PB VIDEO RF
PB C RF
CNR/HE TAPE
REC C RF
REG +9V
AFM STEREO
REG +5V
CN911 5P BLK
Y GND
Y IN
C GND
C IN
ACK IN
CN912 7P WHT
CNR
EDIT
ME/MP
LP SP
HK
GND
Y OUT
CN914 8P BLK
CORE FSC OUT
C OUT
GND
V MUTE
ACK OUT
TO IG-4P BOARD CN007
(See Page 140)
TO IG-4P BOARD CN006
(See Page 140)
TO HK-3 BOARD (3/3)
(See Page 130, 131)
TO IF-38P BOARD CN401
(See Page 169)
TO IF-38P BOARD CN501
(See Page 172)
TO IF 38P BOARD CN502
(See Page

- Refer to page 117 for Printed Wiring Board.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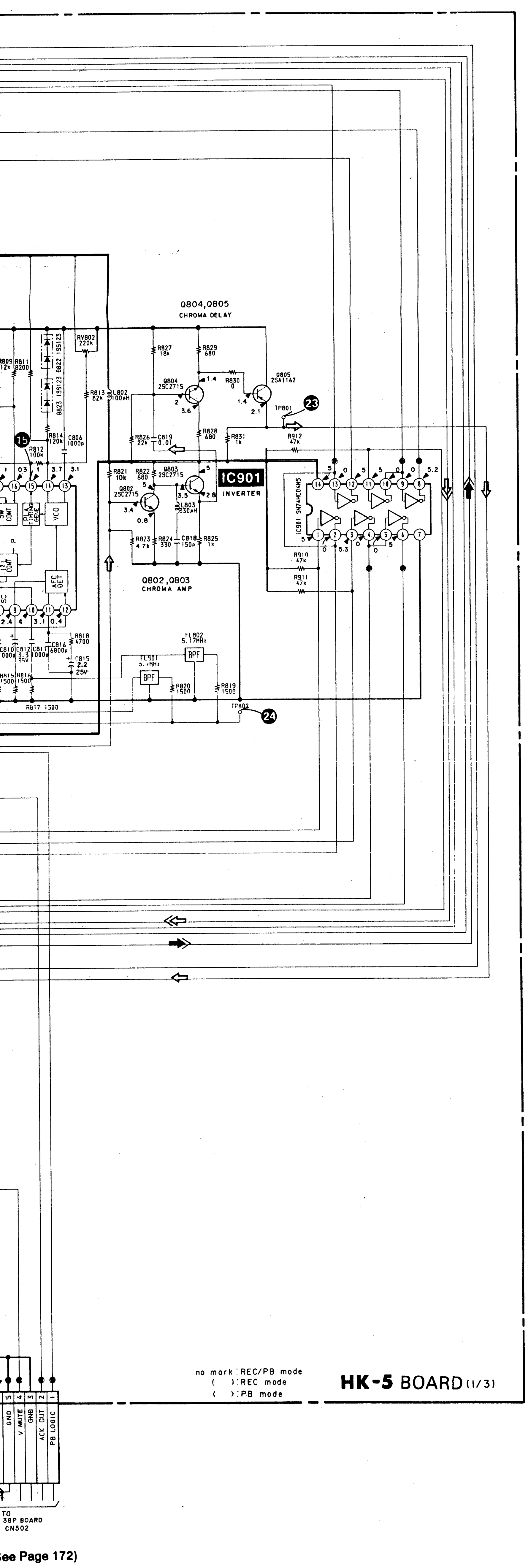
16
ee Page 125)
TO HK-5 BOARD (2/3)
A10 PB C OUT
A11 DUB AREA
A12 SP/ LP
A13 BURST PULSE
A14 PB COMB C IN
A15 EDIT
A16 V.I.SWP
A17 Y OUT
A18 D.C.D
A19 HD INSERT
A20 HK OUT
A21 HK IN
A22 ME /MP
A23 PB /ME
A24 VS
A25 AGC FAST IN
A26 PB C IN
T601
CAR LEVEL
RV602 10k
TP602
IC602
CHROMA PROCESS
BURST EMPH /DEEMPH
PEAKHOLD
CHROMA CONV
C CONV AMP
APC AMP DET
378fH VCO
ACC AMP
90° SIFT
X'tal VCO
4.43MHz
RV601 22k
Vcc
TP601
IC603
CX23054
AFC PULSE GENERATOR
RP SW PAL/NTSC PB/REC
VARIABLE DEVIDE
1/2H KILL
AGC AFC18 APC18
PAL/NTSC PB/REC
90SHIFTER 1/8 DEVIDE
2BITLATCH
PSDH1
V SEPA
VIRSPOINT
PULSE GENE
TIMING GATE
MODE CONT
RFSW
PAL/NTSC
PB/REC
Q611 FSC AMP
Q612 BUFFER
Q611 2SC2715
Q612 2SC2715
Q607, Q608 REC ATF JNV AMP
Q607 2SC2715
Q608 2SA1162
Q801 APC DET SW
D821 1S2837
Q801 DTC144EK
GCA GAIN
RV801 47k
IC801
CHROMA JOG PROCESS
IC801 CX20117
Q606, 811 ACK SWITCH
Q605 2SC2715
Q606 DTC144EK
Q811 DTC144EK
D801 1S2837
Q609 DTC124EK
Q610 FN52
Q613 MUTE
Q613 DTC144EK
SL601
SL602
IC604
JOG CONTROL PULSE GENERATOR
IC604 MC14538
D603 1SS193
D604 1SS193
Q610, Q609 CHROMA MUTE
Q901 DTC144EK
Q902 DTC144EK
Q901, 902 PB LOGIC LEVEL
D802 1S2837
D602 1SS193
D804 1SS193
Q903, 904 PB +5V REG
Q903 2SB804
Q904 2SC2715
D901 1SS193
TP901
TP903
(DUBAREA)
(CUMS)
(PBLOGIC)
(VMUTE)
(PBCRF)
(CMUTE)
(CETRAP)
(AFC.P)
(BURST.P)
(SWP)
CN101
D.C.D
HD INSERT
DUB AREA
SEL 1
SEL 2
REF V
AFM ST V COM
SP/LP
MP HG
ME/MP
HK
REC ATF
REC (ATF)
REC ATF
GND(AFM)
REC AFM
GND(REC V)
REC V RF
TO IG-4P BOARD CN007
(See Page 140)
CN102
GND(PB V RF)
PB V RF
GND(PB RF ACTC)
PB RF AGC
V.I.SWP
COMP SYNC
V MUTE
JOG
AGC FAST
V PB MODE
REG +5V(ANA)
REG +5V(ANA)
GND(ANA)
GND(ANA)
JOG VD
HH DELAY
C MUTE
REG +9V
TO IG-4P BOARD CN006
(See Page 140)
B1 HP HG
B2 HG
B3 JOG
B4 ATF
B5 REC VIDEO RF
B6 REC AFM
B7 PB RF AGC
B8 PB VIDEO RF
B9 PB C RF
B10 CNR/ME TAPE
B11 REC C RF
B12 REG +9V
B13 AFM STEREO
B14 REG +5V
TO HK-5 BOARD (3/3)
(See Page 130, 131)
CN911 5P BLK
GND
Y IN
C GND
C IN
ACK IN
TO IF-38P BOARD CN401
(See Page 169)
CN912 7P WHT
CNR
EDIT
ME/MP
LP SP
HK
GND
Y OUT
TO IF-38P BOARD CN501
(See Page 172)
CN914 8P BLK
CORE FSC OUT
C OUT
GND
V MUTE
GND
ACK OUT
PB LOGIC
TO IF 38P BOARD CN502
(See Page 17

- **SIGNAL PATH**

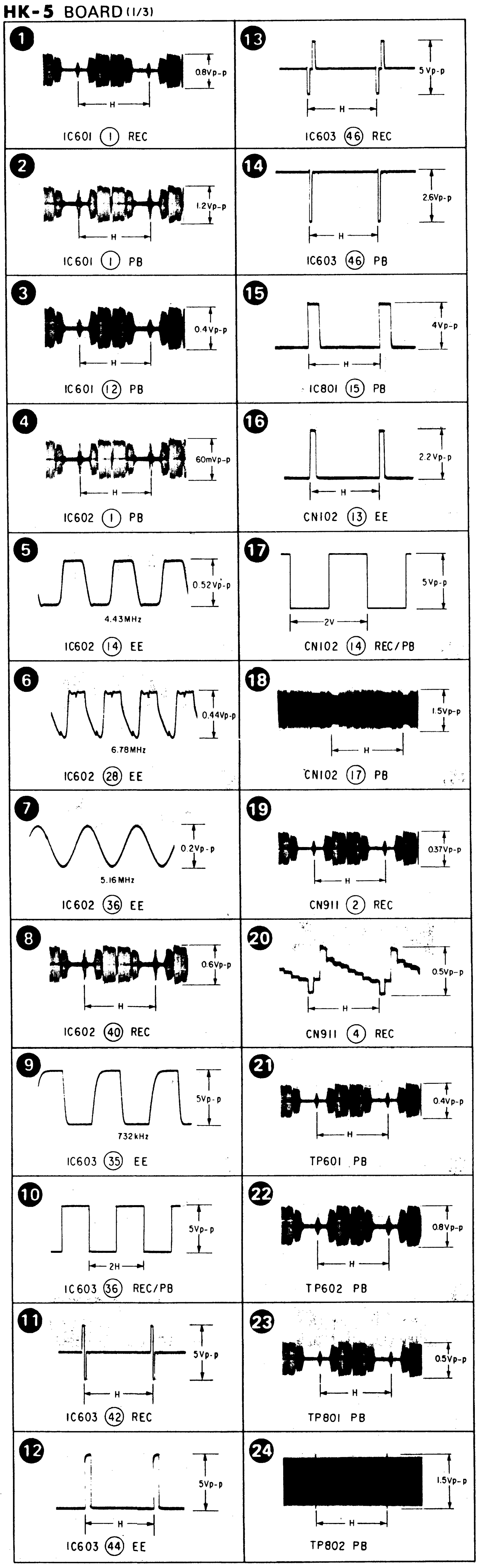
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨


Q804,Q805
CHROMA DELAY
Q804 2SC2715
Q805 2SA1162
TP801
23
15
IC901
INVERTER
IC901 SN74HC04NS
Q802 2SC2715
Q803 2SC2715
Q802,Q803
CHROMA AMP
FL801 5.7MHz
FL802 5.17MHz
BPF
TP802
24
VCO
AFC DET
GND
V MUTE
GND
ACK OUT
PB LOGIC
TO 38P BOARD CN502
no mark :REC/PB mode
( ):REC mode
< >:PB mode

HK-5 BOARD (1/3)

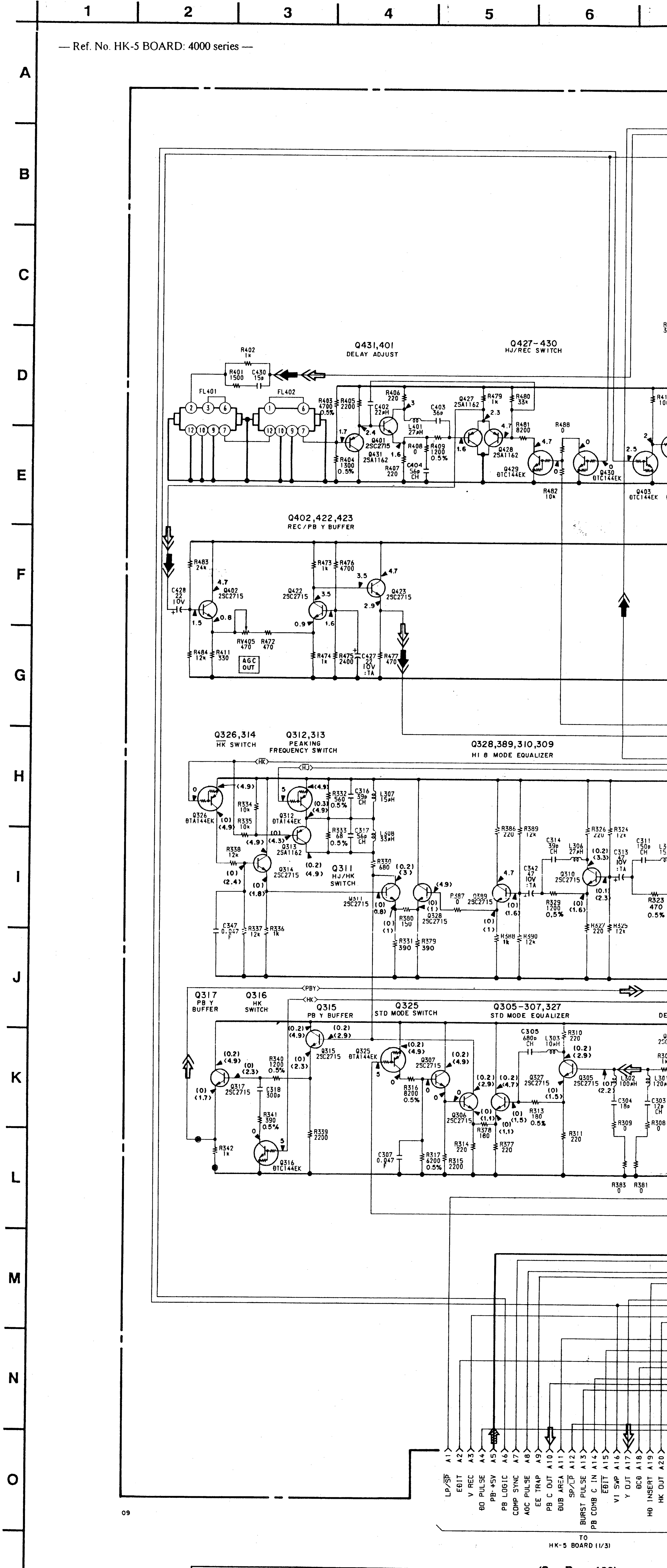
ee Page 172)

HK-5 BOARD (1/3)



HK-5 (Y VIDEO PROCESS) SCHEMATIC DIAGRAM

- Refer to page 117 for Printed Wiring Board.

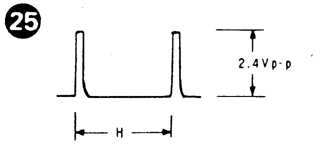

1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
— Ref. No. HK-5 BOARD: 4000 series —
Q431,401
DELAY ADJUST
Q427-430
HJ/REC SWITCH
FL401
FL402
Q402,422,423
REC/PB Y BUFFER
AGC OUT
Q326,314
HK SWITCH
Q312,313
PEAKING FREQUENCY SWITCH
Q328,389,310,309
HI 8 MODE EQUALIZER
Q311
HJ/HK SWITCH
Q317
PB Y BUFFER
Q316
HK SWITCH
Q315
PB Y BUFFER
Q325
STD MODE SWITCH
Q305-307,327
STD MODE EQUALIZER
LP/SP A1
EDIT A2
V REC A3
80 PULSE A4
PB·+5V A5
PB LOGIC A6
COMP SYNC A7
AGC PULSE A8
EE TRAP A9
PB C OUT A10
DUB AREA A11
SP/LP A12
BURST PULSE A13
PB COMB C IN A14
EDIT A15
V1 SWP A16
Y OUT A17
8C8 A18
H0 INSERT A19
HK OUT A20
TO HK-5 BOARD (1/3)
09

(See Page 122)

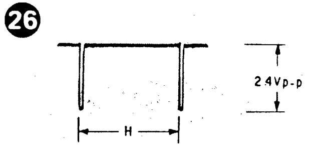
- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC		➡		
PB	⇨	⇨⇨	⇨⇨⇨	

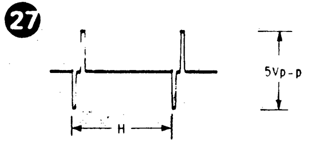
HK-5 BOARD (2/3)

㉕


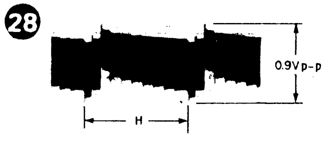
IC301 ② EE

㉖


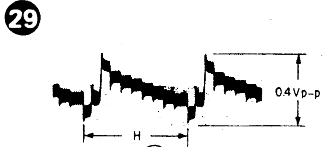
IC301 ⑤ PB

㉗


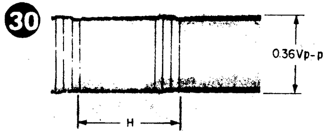
IC301 ⑤ REC

㉘


IC301 ⑫ PB

㉙


IC301 ㊵ PB

㉚


IC301 ㊽ PB

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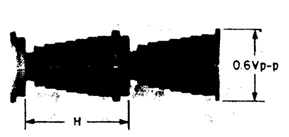
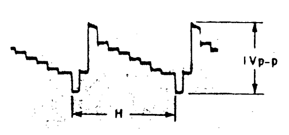
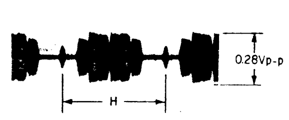


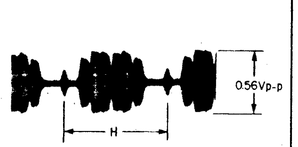
IC501 ② PB

㉜


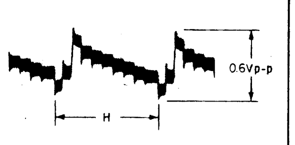
IC501 ⑱ EE

㉝


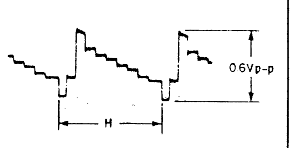
IC501 ㉟ PB

㉞


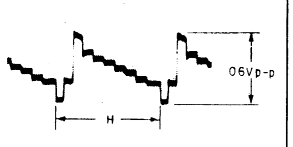
IC501 ㊷ PB

㉟


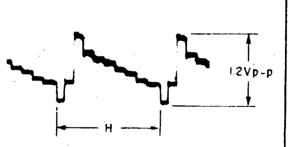
IC501 ㊹ PB

㊱


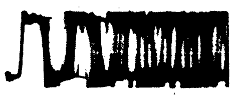
TP301 REC

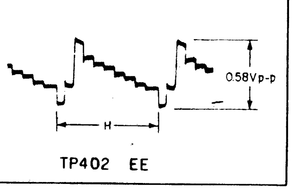
㊲


TP302 PB

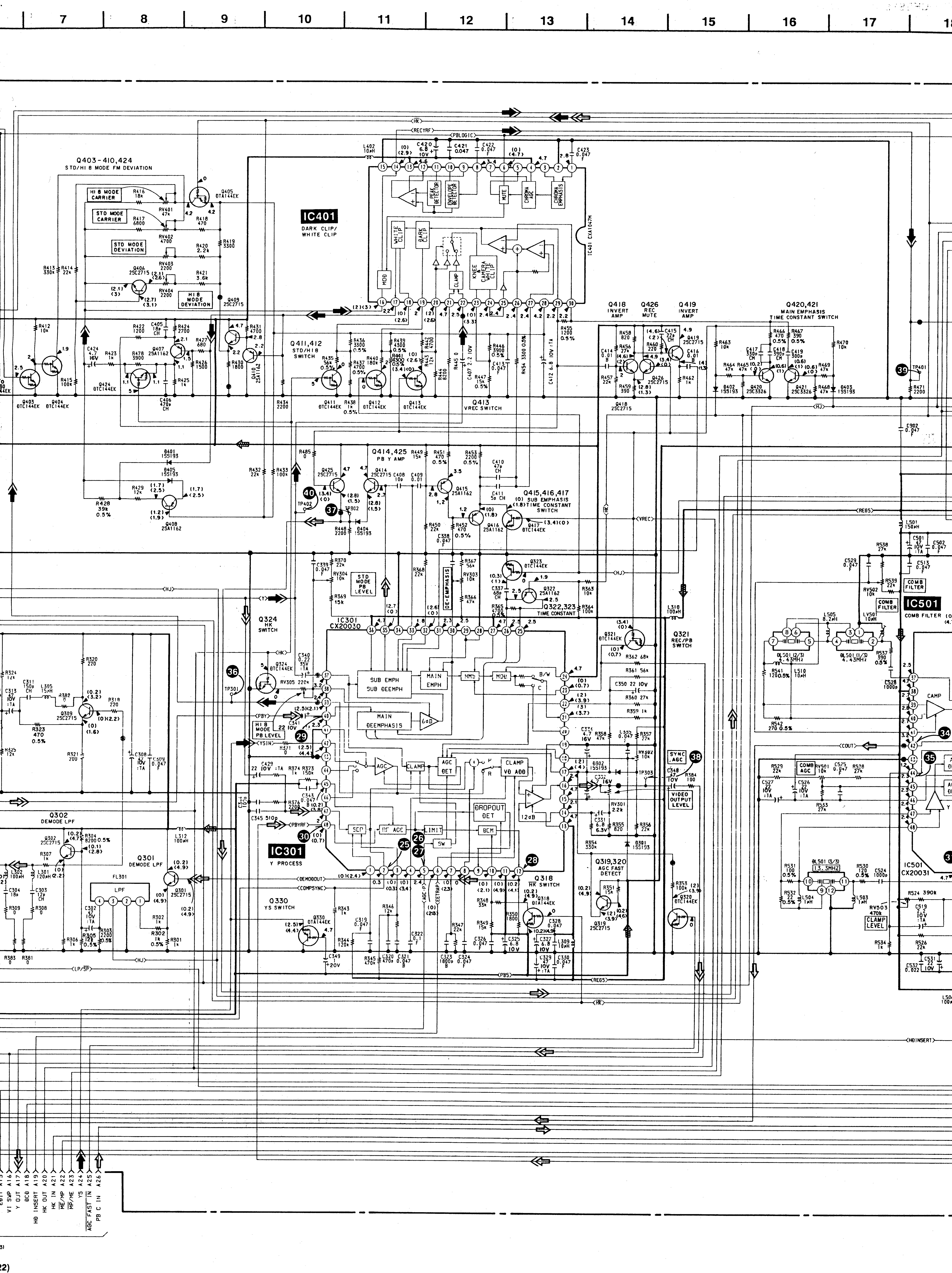
㊳


TP303 PB

㊴

H 0.1μsec/DIV
V: 50mV/DIV
TP401 REC

㊵


TP402 EE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17
Q403-410,424
STD/HI 8 MODE FM DEVIATION
HI 8 MODE CARRIER
STD MODE CARRIER
STD MODE DEVIATION
HI 8 MODE DEVIATION
Q405 DTA144EK
Q406 2SC2715
Q409 2SC2715
Q407 2SA1162
Q410 2SA1162
Q424 DTC144EK
Q403 DTC144EK
Q404 DTC144EK
IC401
DARK CLIP/ WHITE CLIP
IC401 CXA1047M
PEAK DETECTOR
ENVELOPE DETECTOR
MUTE
CHROMA AGC
CHROMA EMPHASIS
WHITE CLIP
DARK CLIP
MOD
CLAMP
KNEE CAMERA WHITE CLIP
Q411,412
STD/HI8 SWITCH
Q411 DTC144EK
Q412 DTC144EK
Q413 DTC144EK
Q413 VREC SWITCH
Q418 INVERT AMP
Q426 REC MUTE
Q419 INVERT AMP
Q420,421 MAIN EMPHASIS TIME CONSTANT SWITCH
Q418 2SC2715
Q426 2SC2715
Q419 2SC2715
Q420 2SC3326
Q421 2SC3326
D402 1SS193
D403 1SS193
TP401
Q414,425 PB Y AMP
Q425 2SC2715
Q414 2SC2715
Q415 2SA1162
Q415,416,417 SUB EMPHASIS TIME CONSTANT SWITCH
Q416 2SA1162
Q417 DTC144EK
D401 1SS193
D405 1SS193
Q408 2SA1162
TP402
TP302
D404 1SS193
STD MODE PB LEVEL
DE-EMPHASIS
Q323 DTC144EK
Q322 2SA1162
Q322,323 TIME CONSTANT
Q324 HK SWITCH
Q324 DTC144EK
IC301 CX20030
SUB EMPH SUB DEEMPH
MAIN EMPH
HMS
MOD
B/W
C
MAIN DEEMPHASIS
6dB
HI 8 MODE PB LEVEL
AGC
CLAMP
AGC DET
CLAMP VD ADD
12dB
DROPOUT DET
SCD
RF AGC
LIMIT
SW
DCM
IC301
Y PROCESS
Q321 DTC144EK
Q321 REC/PB SWITCH
SYNC AGC
VIDEO OUTPUT LEVEL
D302 1SS193
D301 1SS193
TP303
TP301
Q319,320 AGC FAST DETECT
Q319 2SC2715
Q320 DTC144EK
Q318 HK SWITCH
Q318 DTA144EK
Q330 YS SWITCH
Q330 DTA144EK
Q309 2SC2715
Q302 DEMODE LPF
Q302 2SC2715
Q301 DEMODE LPF
Q301 2SC2715
FL301
LPF
IC501
COMB FILTER
COMB FILTER
DL501 (2/3) 4.43MHz
DL501 (1/3) 4.43MHz
DL501 (3/3) 13.3MHZ
CAMP
COMB AGC
CLAMP LEVEL
IC501 CX20031
HK
RECYRF
PBLOGIC
HJ
Y
YSIN
PBY
PBYRF
DEMODOUT
COMPSYNC
VREC
RE65
COUT
PB5
LP/SP
HOINSERT
VI SWP A16
Y OUT A17
DCD A18
HD INSERT A19
HK OUT A20
HK IN A21
ME/MP A22
MP/ME A23
YS A24
AGC FAST IN A25
PB C IN A26
25
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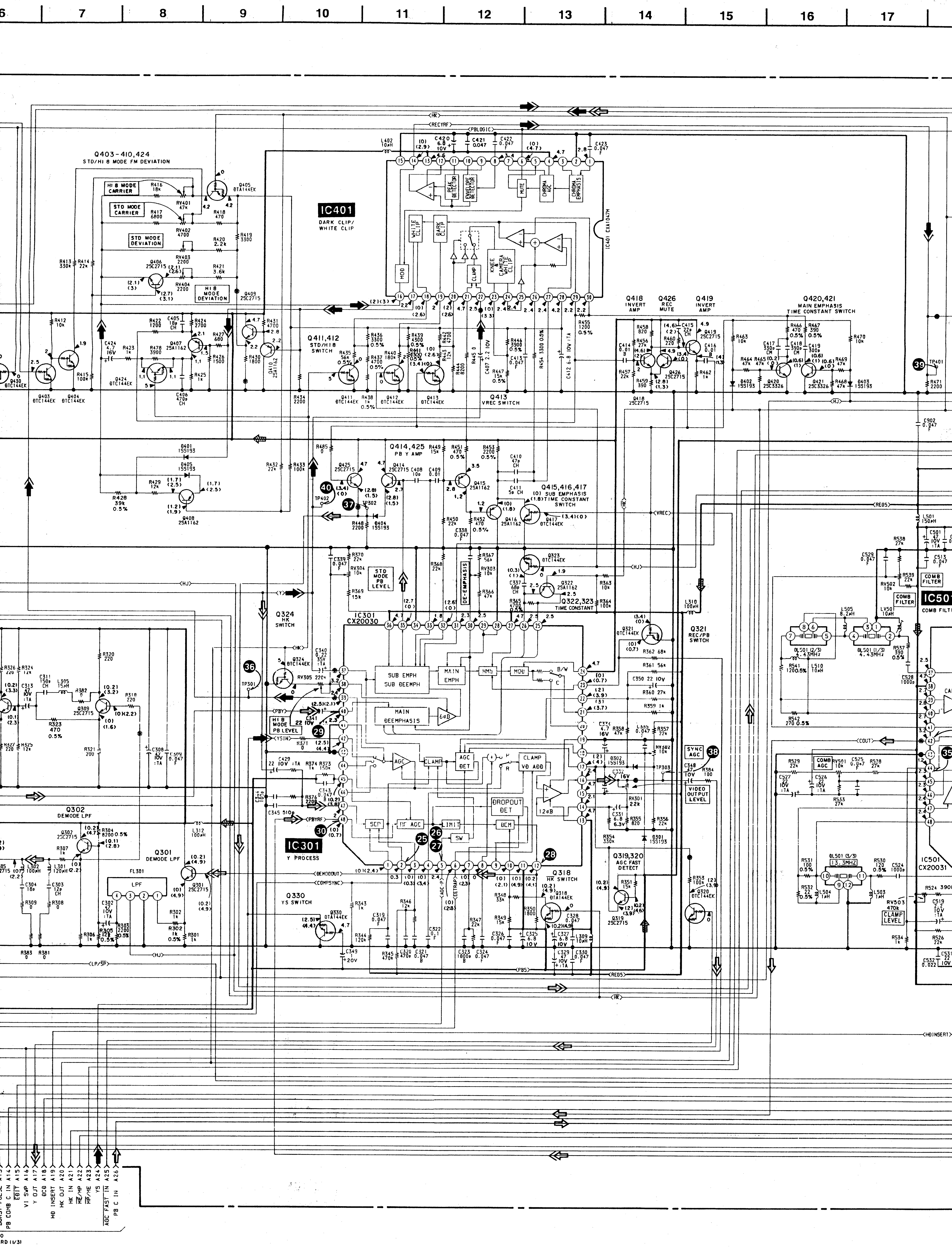

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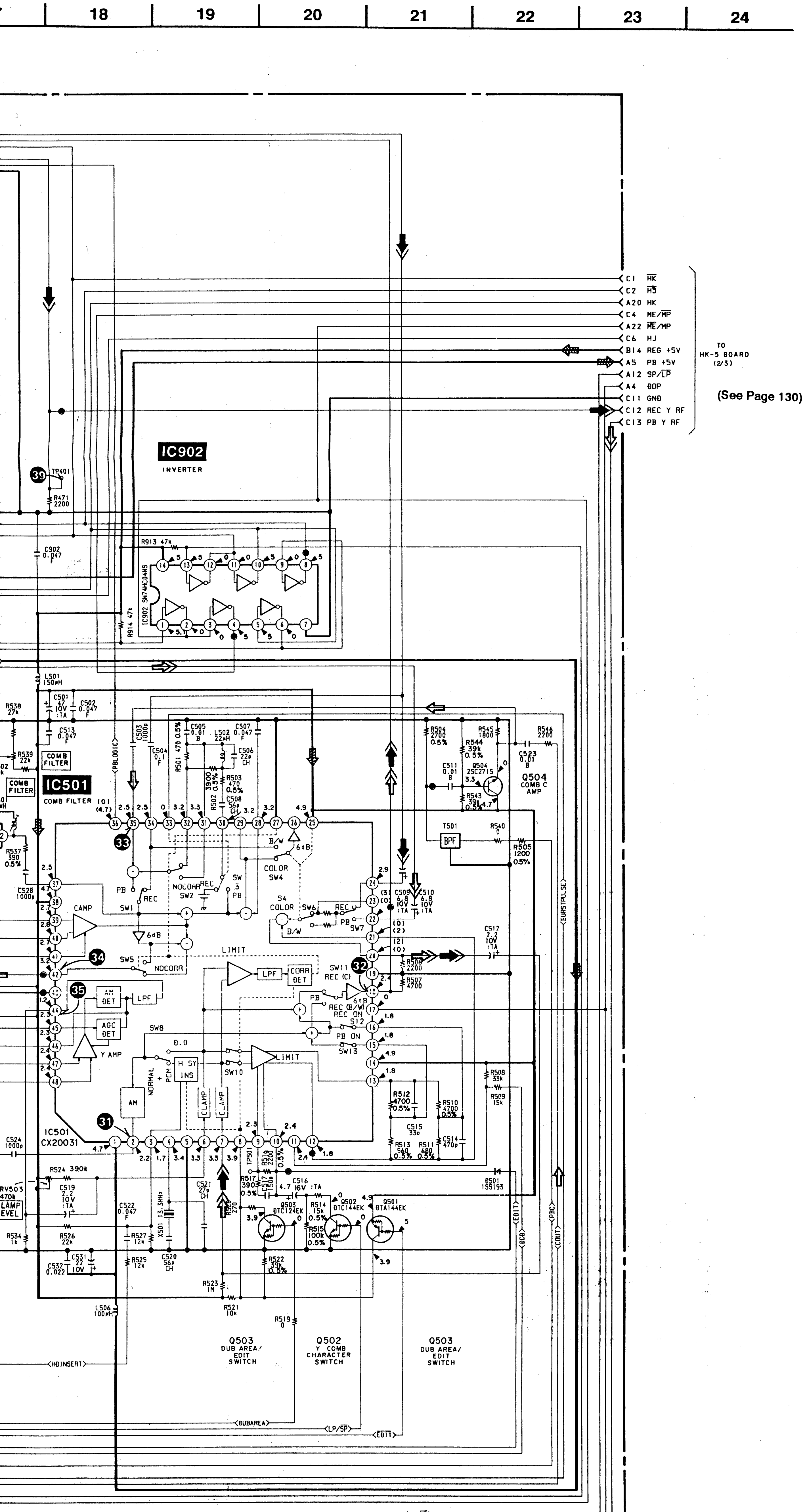
17
Q403-410,424
STD/HI 8 MODE FM DEVIATION
HI 8 MODE CARRIER
STD MODE CARRIER
STD MODE DEVIATION
HI 8 MODE DEVIATION
IC401
DARK CLIP/ WHITE CLIP
IC401 CXA1047M
PEAK DETECTOR
ENVELOPE DETECTOR
MUTE
CHROMA AGC
CHROMA EMPHASIS
WHITE CLIP
DARK CLIP
MOD
CLAMP
KNEE CAMERA WHITE CLIP
Q411,412 STD/HI 8 SWITCH
Q413 VREC SWITCH
Q418 INVERT AMP
Q426 REC MUTE
Q419 INVERT AMP
Q420,421 MAIN EMPHASIS TIME CONSTANT SWITCH
Q414,425 PB Y AMP
Q415,416,417 SUB EMPHASIS TIME CONSTANT SWITCH
Q322,323 TIME CONSTANT
Q324 HK SWITCH
Q321 REC/PB SWITCH
STD MODE PB LEVEL
DE-EMPHASIS
HI 8 MODE PB LEVEL
IC301 CX20030
SUB EMPH SUB DEEMPH
MAIN EMPH
MAIN DEEMPHASIS
HMS
MOD
B/W
C
AGC
CLAMP
AGC DET
CLAMP VO ADD
DROPOUT DET
SCP
RF AGC
LIMIT
SW
DEM
6dB
12dB
SYNC AGC
VIDEO OUTPUT LEVEL
IC301
Y PROCESS
Q330 YS SWITCH
Q318 HK SWITCH
Q319,320 AGC FAST DETECT
Q302 DEMODE LPF
Q301 DEMODE LPF
FL301 LPF
COMB FILTER
IC501
COMB FILTER
COMB AGC
CLAMP LEVEL
IC501 CX20031
ΩL501 (2/3) 4.43MHz
ΩL501 (1/3) 4.43MHz
ΩL501 (3/3) 13.3MHz
TP401
TP402
TP302
TP301
TP303
<HK>
<RECYRF>
<PBLOGIC>
<HJ>
<Y>
<YSIN>
<PBY>
<PBYRF>
<VREC>
<REOS>
<COUT>
<DEMODOUT>
<COMPSYNC>
<LP/SP>
<PBS>
<HOINSERT>
AGC-P
EETRAP
A14 PB COMB C IN
A15 EDIT
A16 VI SWP
A17 Y OUT
A18 θCO
A19 HD INSERT
A20 HK OUT
A21 HK IN
A22 HK/HP
A23 HP/HE
A24 YS
A25 AGC FAST IN
A26 PB C IN
RD (1/3)

ge 122)


18
19
20
21
22
23
24
C1 HK
C2 HJ
A20 HK
C4 ME/MP
A22 ME/MP
C6 HJ
B14 REG +5V
A5 PB +5V
A12 SP/LP
A4 DOP
C11 GND
C12 REC Y RF
C13 PB Y RF
TO HK-5 BOARD (2/3)
(See Page 130)
IC902
INVERTER
IC902 SN74HC04NS
R913 47k
R914 47k
TP401
R471 2200
C902 0.047
L501 150μH
C501 47 10V
C502 0.047
C513 0.047
COMB FILTER
IC501
COMB FILTER (0) (4.7)
IC501 CX20031
CAMP
Y AMP
AGC DET
AM DET
LPF
CORR DET
LIMIT
B/W
COLOR SW4
S4 COLOR
NOCORR
SW1
SW2
SW3
SW5
SW6
SW7
SW8
SW10
SW11 REC (C)
S12
SW13
PB ON
H SY INS
CLAMP
C_AMP
NORMAL PCM
AM
T501 BPF
R504 2700 0.5%
R545 1800
R544 39k 0.5%
R543 39k 0.5%
R546 2200
C523 0.01
C511 0.01
Q504 2SC2715
Q504 COMB C AMP
R540 0
R505 1200 0.5%
C509 6.8 10V
C510 6.8 10V
C512 2.2 10V
R506 2200
R507 4700
R508 33k
R509 15k
R510 4700 0.5%
R512 4700 0.5%
C515 33p
R513 560 0.5%
R511 680 0.5%
C514 470p
D501 1SS193
R517 390 0.5%
C516 4.7 16V
R514 15k 0.5%
R515 100k 0.5%
R522 39k 0.5%
R523 1M
R521 10k
R519 0
Q503 DTC124EK
Q502 DTC144EK
Q501 DTA144EK
Q503 DUB AREA/EDIT SWITCH
Q502 Y COMB CHARACTER SWITCH
Q503 DUB AREA/EDIT SWITCH
R524 390k
RV503 470k LAMP LEVEL
C519 2.2 10V
C522 0.047
R527 12k
R526 22k
R525 12k
C520 56p
C521 27p
X501 13.3MHz
C531 22 10V
C532 0.022
R534 1k
C524 1000p
L506 100μH
R538 27k
R539 22k
R537 390 0.5%
C528 1000p
C503 1000p
C504 0.1
R501 470 0.5%
C505 0.01
L502 22μH
C506 22p
C507 0.047
R502 3900 0.5%
R503 470 0.5%
C508 56p
TP501
R518 2200
HDINSERT
DUBAREA
LP/SP
EDIT
SP/LP
DOPULSE
EURSTPULSE
PBLOGIC
DCB
PBC
COUT
31
32
33
34
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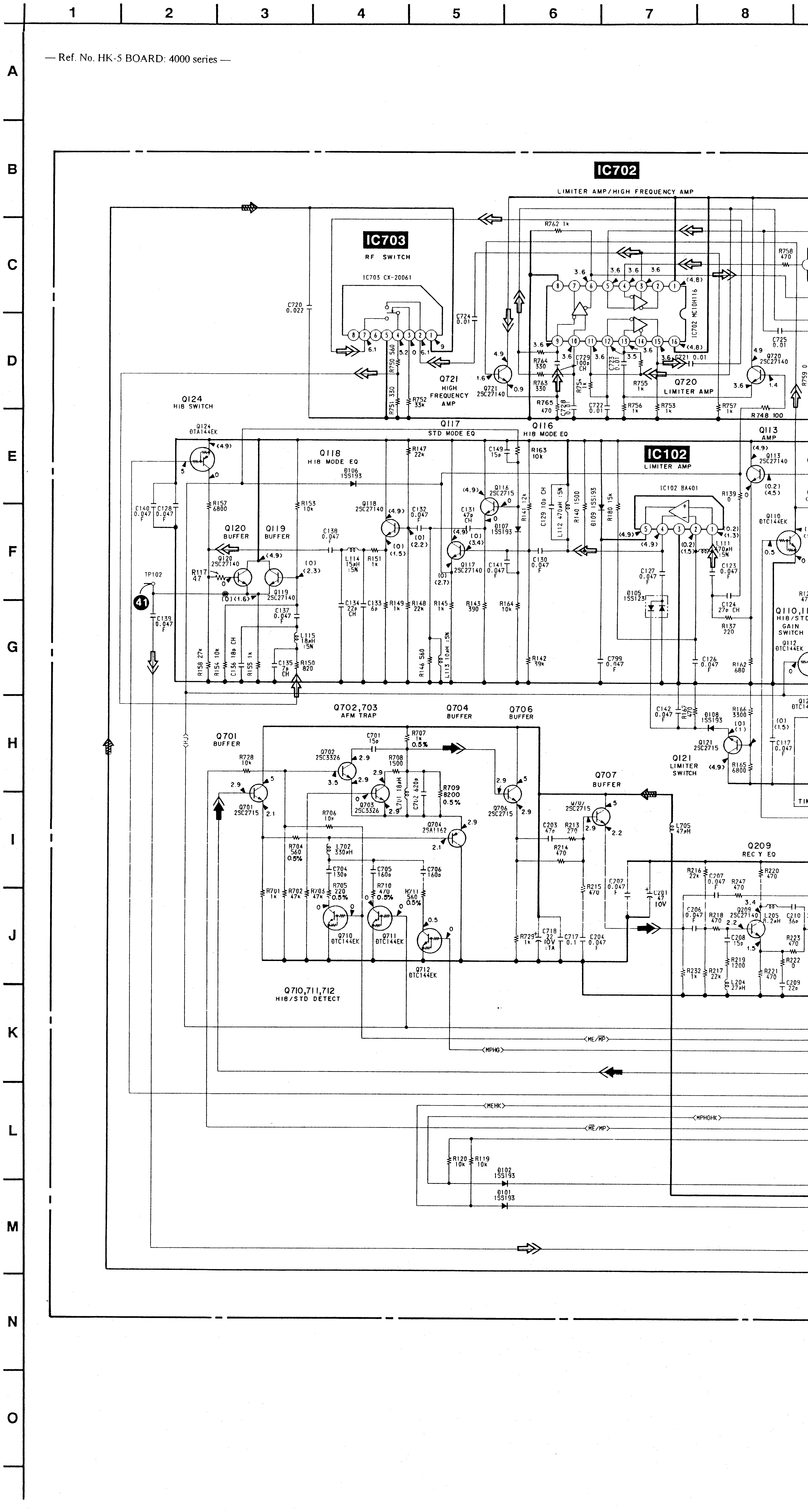
39

no mark : REC/PB mode
( ) : REC mode
< > : PB mode

HK-5 BOARD (2/3)

— Ref. No. HK-5 BOARD: 4000 series —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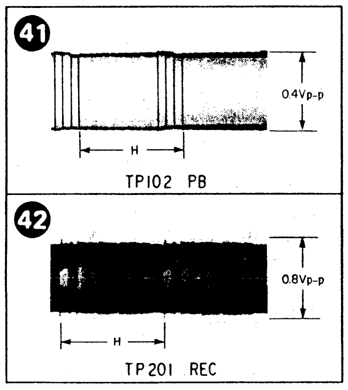
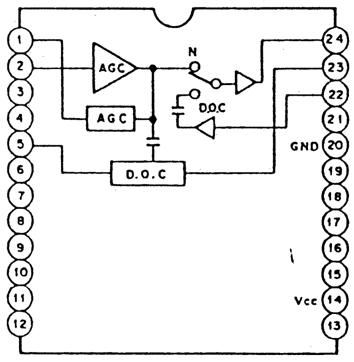
O
IC702
LIMITER AMP/HIGH FREQUENCY AMP
IC702 MC10H116
IC703
RF SWITCH
IC703 CX-20061
Q721
HIGH FREQUENCY AMP
Q721 2SC2714O
Q720
LIMITER AMP
Q720 2SC2714O
Q124
Hi8 SWITCH
Q124 DTA144EK
Q117
STD MODE EQ
Q116
Hi8 MODE EQ
Q118
Hi8 MODE EQ
Q120
BUFFER
Q119
BUFFER
IC102
LIMITER AMP
IC102 BA401
Q113
AMP
Q110,112
Hi8/STD GAIN SWITCH
TP102
41
Q702,703
AFM TRAP
Q704
BUFFER
Q706
BUFFER
Q701
BUFFER
Q707
BUFFER
Q121
LIMITER SWITCH
Q209
REC Y EQ
Q710,711,712
Hi8/STD DETECT
<ME/MP>
<MPHG>
<MEHK>
<MPHGHK>
<HJ>
D101 1SS193
D102 1SS193
R120 10k
R119 10k

HK-5 BOARD (3/3)



IC101 (TA8607F)


AGC
AGC
N
D.O.C
D.O.C
GND
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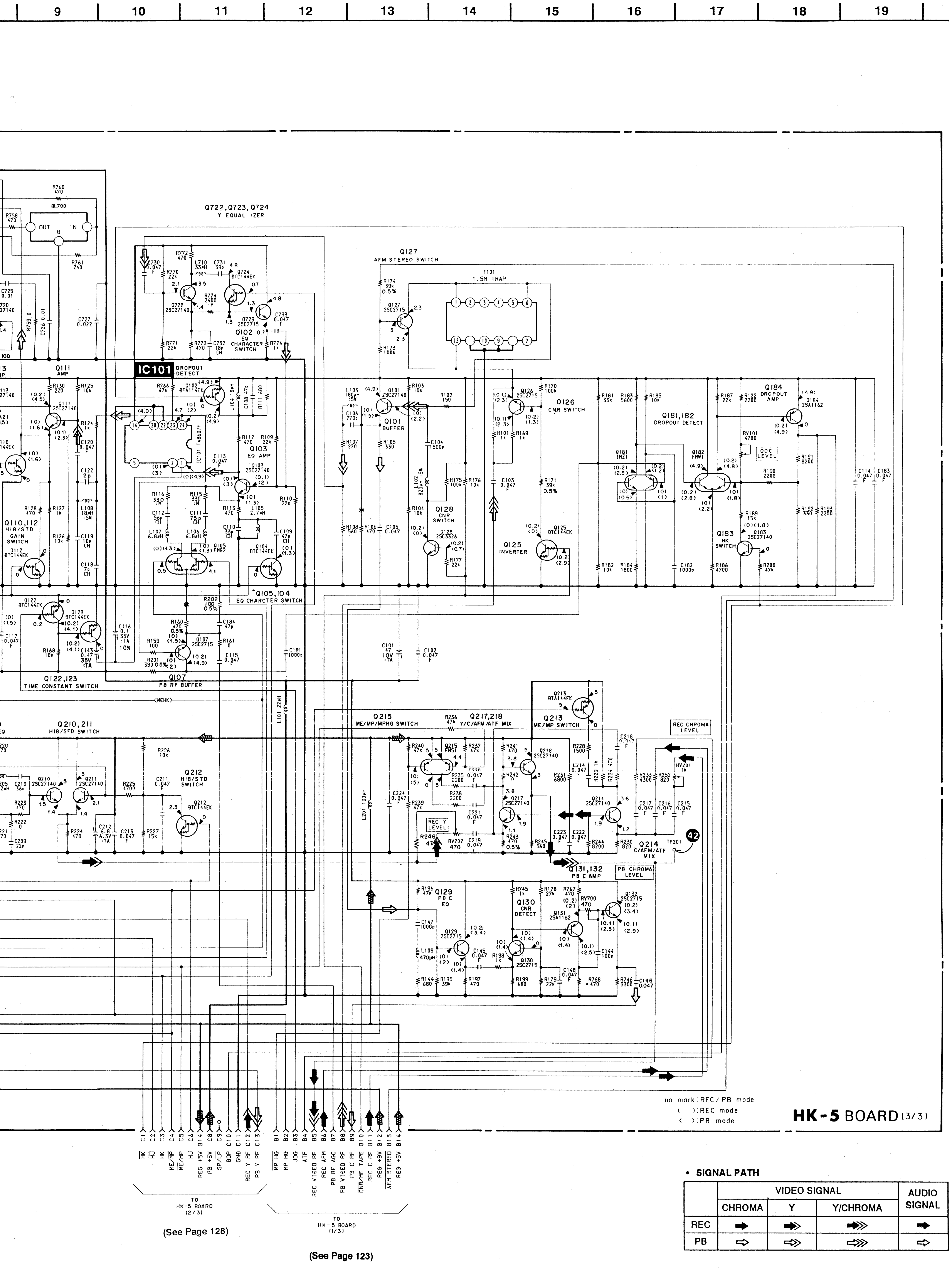
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Q722,Q723,Q724
Y EQUALIZER
Q127
AFM STEREO SWITCH
T101
1.5M TRAP
IC101 DROPOUT DETECT
IC101 TA8607F
Q111 AMP
Q102 EQ CHARACTER SWITCH
Q103 EQ AMP
Q101 BUFFER
Q126 CNR SWITCH
Q128 CNR SWITCH
Q125 INVERTER
Q181,182 DROPOUT DETECT
Q184 DROPOUT AMP
Q183 HK SWITCH
DOC LEVEL
Q110,112 HI8/STD GAIN SWITCH
Q105,104 EQ CHARACTER SWITCH
Q107 PB RF BUFFER
Q122,123 TIME CONSTANT SWITCH
Q210,211 HI8/SFD SWITCH
Q212 HI8/STD SWITCH
Q215 ME/MP/MPHG SWITCH
Q217,218 Y/C/AFM/ATF MIX
Q213 ME/MP SWITCH
REC CHROMA LEVEL
REC Y LEVEL
Q214 C/AFM/ATF MIX
TP201
42
Q131,132 PB C AMP
PB CHROMA LEVEL
Q129 PB C EQ
Q130 CNR DETECT
C1 HK
C2 HJ
C3 HK
C4 ME/MP
C5 ME/MP
C6 HJ
C7 REG +5V
C8 PB +5V
C9 SP/LP
C10 DOP
C11 GND
C12 REC Y RF
C13 PB Y RF
B1 MP HG
B2 MP HG
B3 JOG
B4 ATF
B5 REC VIDEO RF
B6 REC AFM
B7 PB RF AGC
B8 PB VIDEO RF
B9 PB C RF
B10 CNR/ME TAPE
B11 REC C RF
B12 REG +9V
B13 AFM STEREO
B14 REG +5V
TO HK-5 BOARD (2/3)
(See Page 128)
TO HK-5 BOARD (1/3)
(See Page 123)
no mark: REC/PB mode
( ):REC mode
< >:PB mode
HK-5 BOARD (3/3)

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

SE-10P (SERVO, SYSTEM CONTROL, ATF SERVO), IG-4P (BOARD LINK) PRINTED WIRING BOARDS

— Ref. No. SE-10P BOARD: 5000 series, IG-4P BOARD: 6000 series —

SE-10P BOARD (COMPONENT SIDE)

D003	B-5
D004	B-6
D005	B-6
D006	D-2
D007	D-4
D012	C-4
D013	D-3
D016	A-2
D101	D-6
D102	D-5
D103	D-5
D104	E-5
D105	E-5
D106	E-5
D201	F-4
D401	G-2
IC001	B-2
IC002	D-3
IC003	A-5
IC101	C-5
IC102	G-2
IC103	D-6
IC104	C-6
IC105	E-5
IC106	C-4
IC107	G-2
IC108	F-2
IC201	G-4
IC202	G-4
IC203	H-3
IC204	F-4
IC205	F-4
IC301	F-2
IC302	E-2
IC303	E-1
IC305	E-3
IC601	F-6
IC602	G-5
IC603	H-4
IC604	H-4
Q003	B-4
Q004	B-4
Q007	D-2
Q009	E-3
Q010	D-4
Q011	C-3
Q015	F-3
Q018	C-2
Q114	D-2
Q210	F-4
Q303	E-2
Q305	D-2
Q306	D-2
Q308	F-2
Q309	E-2
Q401	H-2
Q403	H-1
Q406	H-2
Q408	H-2
Q409	G-2
Q411	G-2
Q502	G-6
Q503	G-6
Q505	G-5
Q506	G-5
Q507	G-5
Q508	G-5
Q601	G-4
Q604	H-3
Q606	H-5
Q702	D-4
Q704	E-4
Q713	E-4

〈 DIODE 〉

D003	8-719-400-18	DIODE	MA152WK
D004	8-719-400-18	DIODE	MA152WK
D005	8-719-400-18	DIODE	MA152WK
D006	8-719-104-34	DIODE	1S2836
D007	8-719-400-18	DIODE	MA152WK
D008	8-719-400-18	DIODE	MA152WK
D009	8-719-400-18	DIODE	MA152WK
D012	8-719-400-18	DIODE	MA152WK
D013	8-719-400-18	DIODE	MA152WK
D015	8-719-104-34	DIODE	1S2836
D016	8-719-104-34	DIODE	1S2836
D102	8-719-800-76	DIODE	1SS226
D103	8-719-800-76	DIODE	1SS226
D104	8-719-104-34	DIODE	1S2836
D105	8-719-400-18	DIODE	MA152WK
D106	8-719-400-18	DIODE	MA152WK
D107	8-719-104-34	DIODE	1S2836
D108	8-719-400-18	DIODE	MA152WK
D109	8-719-400-18	DIODE	MA152WK
D110	8-719-104-34	DIODE	1S2836
D111	8-719-400-18	DIODE	MA152WK
D112	8-719-104-34	DIODE	1S2836
D201	8-719-400-18	DIODE	MA152WK
D203	8-719-105-83	DIODE	RD5. 1M-B3
D301	8-719-400-18	DIODE	MA152WK
D302	8-719-400-18	DIODE	MA152WK
D401	8-719-800-76	DIODE	1SS226
D701	8-719-400-18	DIODE	MA152WK

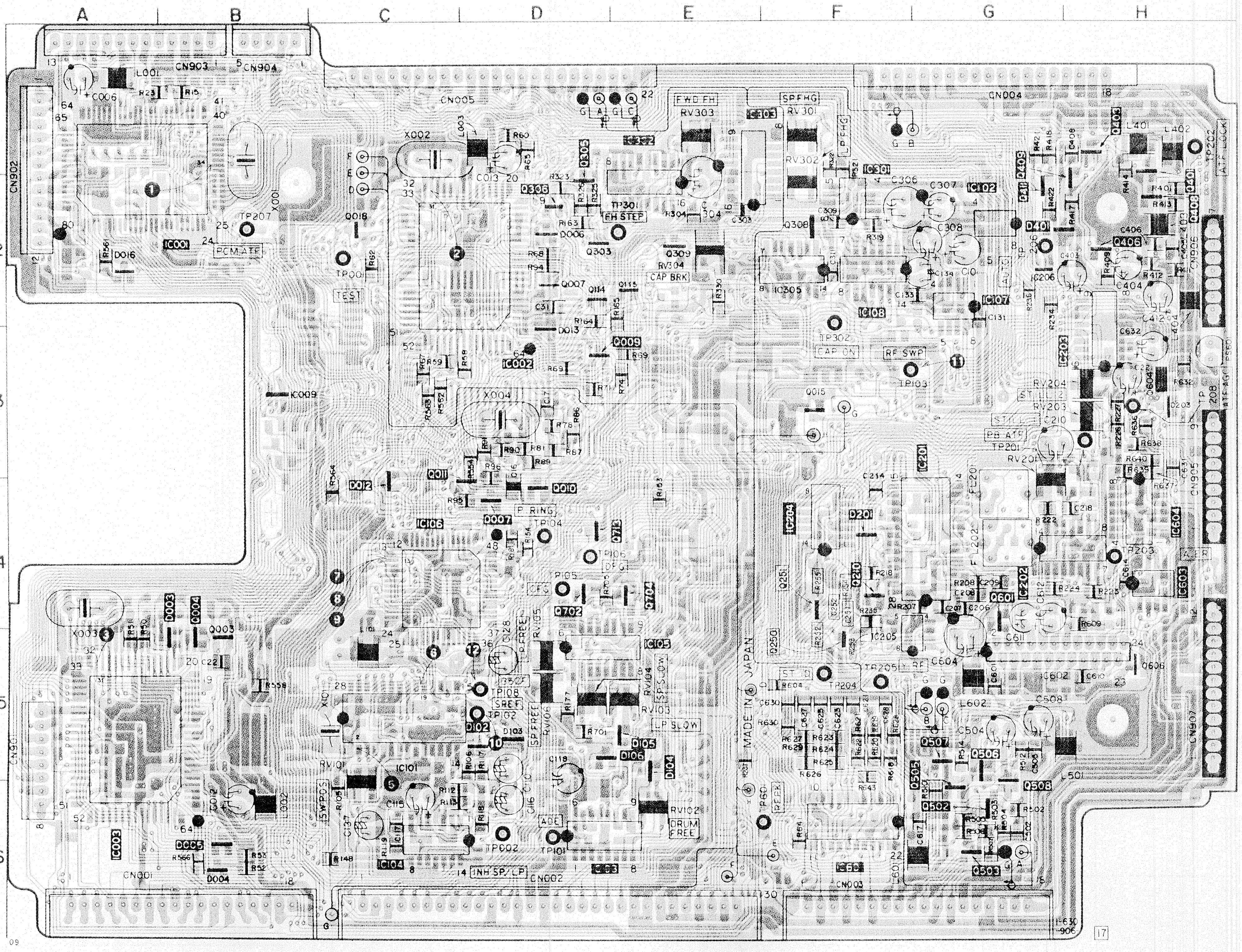
〈 IC 〉

IC001	8-752-819-81	IC	CXP80116-855Q
IC002	8-752-838-32	IC	CXP5048H-286Q
IC003	8-752-833-77	IC	CXP5048H-277Q
IC004	8-759-144-21	IC	uPD75106G-573-1B
IC007	8-759-008-67	IC	MC14066BF
IC008	8-759-937-56	IC	S-8054ALB-LM-S
IC101	8-752-003-50	IC	CX20035
IC102	8-759-803-47	IC	LA5005M
IC103	8-759-925-66	IC	BA6303F
IC104	8-759-981-75	IC	RC3403AM
IC105	8-759-300-71	IC	HD14053BFP
IC106	8-759-971-25	IC	MB674169U
IC107	8-759-100-94	IC	uPC358G2
IC108	8-759-008-67	IC	MC14066BF
IC201	8-759-928-56	IC	CXA1042M
IC202	8-759-150-05	IC	uPC324G2-E1
IC203	8-759-300-71	IC	HD14053BFP
IC204	8-759-927-46	IC	SN74HC00ANS
IC205	8-759-710-86	IC	NJM2233BM
IC206	8-759-035-93	IC	SC7S32F
IC301	8-759-100-94	IC	uPC358G2
IC302	8-759-300-71	IC	HD14053BFP
IC303	8-759-300-71	IC	HD14053BFP
IC304	8-759-200-90	IC	TC4538BF
IC305	8-759-927-46	IC	SN74HC00ANS
IC601	8-759-927-94	IC	BU3707F
IC602	8-759-927-52	IC	BA7036LS
IC603	8-759-100-93	IC	uPC393G2
IC604	8-759-150-05	IC	uPC324G2-E1

〈 TRANSISTOR 〉

Q002	8-729-901-01	TRANSISTOR	DTC144EK
Q003	8-729-901-06	TRANSISTOR	DTA144EK
Q004	8-729-901-01	TRANSISTOR	DTC144EK
Q005	8-729-901-01	TRANSISTOR	DTC144EK
Q006	8-729-901-01	TRANSISTOR	DTC144EK
Q007	8-729-901-01	TRANSISTOR	DTC144EK
Q008	8-729-901-01	TRANSISTOR	DTC144EK
Q009	8-729-901-01	TRANSISTOR	DTC144EK
Q010	8-729-901-06	TRANSISTOR	DTA144EK
Q011	8-729-901-06	TRANSISTOR	DTA144EK
Q014	8-729-901-01	TRANSISTOR	DTC144EK
Q015	8-729-901-01	TRANSISTOR	DTC144EK
Q018	8-729-901-01	TRANSISTOR	DTC144EK
Q101	8-729-901-06	TRANSISTOR	DTA144EK
Q102	8-729-901-06	TRANSISTOR	DTA144EK
Q103	8-729-901-06	TRANSISTOR	DTA144EK
Q104	8-729		
Q106	8-729		
Q107	8-729		
Q108	8-729		
Q109	8-729		
Q110	8-729		
Q111	8-729		
Q112	8-729		
Q113	8-729		
Q114	8-729		
Q115	8-729		
Q116	8-729		
Q202	8-729		
Q205	8-729		
Q209	8-729		
Q210	8-729		
Q250	8-729		
Q251	8-729		
Q301	8-729		
Q302	8-729		
Q303	8-729		
Q304	8-729		
Q305	8-729		
Q306	8-729		
Q307	8-729		
Q308	8-729		

SE-10P BOARD (COMPONENT SIDE)



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CN903
CN904
CN902
CN005
CN004
CN901
CN001
CN002
CN003
CN905
CN906
CN907
IC001
IC002
IC003
IC009
IC101
IC102
IC104
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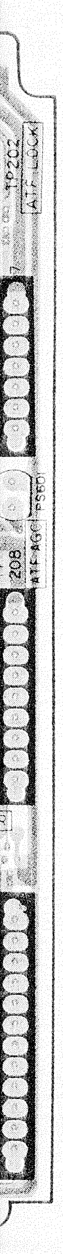
IC203
IC204
IC301
IC302
IC303
IC305
IC601
IC602
IC603
IC604
X001
X002
X003
X004
RV101
RV102
RV103
RV104
RV105
RV106
RV201
RV202
RV203
RV204
RV301
RV302
RV303
RV304
TP001
TEST
TP102
TP103
TP104
TP105
TP106
TP108
TP201
TP207
TP208
TP301
TP302
TP601
TP1002
TP101
PCM ATF
FWD FH
SP FHG
FH STEP
CAP BRK
CAP ON
RF SWP
P RING
CFG
DFG
SP FREE
SP SLOW
LP SLOW
SREF
AGC
DRUM FREE
INH SP/LP
SWP03
PB ATF
STILL
ATF LOCK
PEAK
MADE IN JAPAN

8-729-901-01	TRANSISTOR	DTC144EK
8-729-100-66	TRANSISTOR	2SC1623-L6
8-729-901-06	TRANSISTOR	DTA144EK
8-729-901-06	TRANSISTOR	DTA144EK
8-729-901-06	TRANSISTOR	DTA144EK
8-729-901-06	TRANSISTOR	DTA144EK
8-729-100-66	TRANSISTOR	2SC1623-L6
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-06	TRANSISTOR	DTA144EK
8-729-216-22	TRANSISTOR	2SA1162-G
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-06	TRANSISTOR	DTA144EK
8-729-901-01	TRANSISTOR	DTC144EK
8-729-102-07	TRANSISTOR	2SC2223-F13
8-729-201-27	TRANSISTOR	2SC2715-Y
8-729-901-06	TRANSISTOR	DTA144EK
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-06	TRANSISTOR	DTA144EK
8-729-901-01	TRANSISTOR	DTC144EK
8-729-901-01	TRANSISTOR	DTC144EK

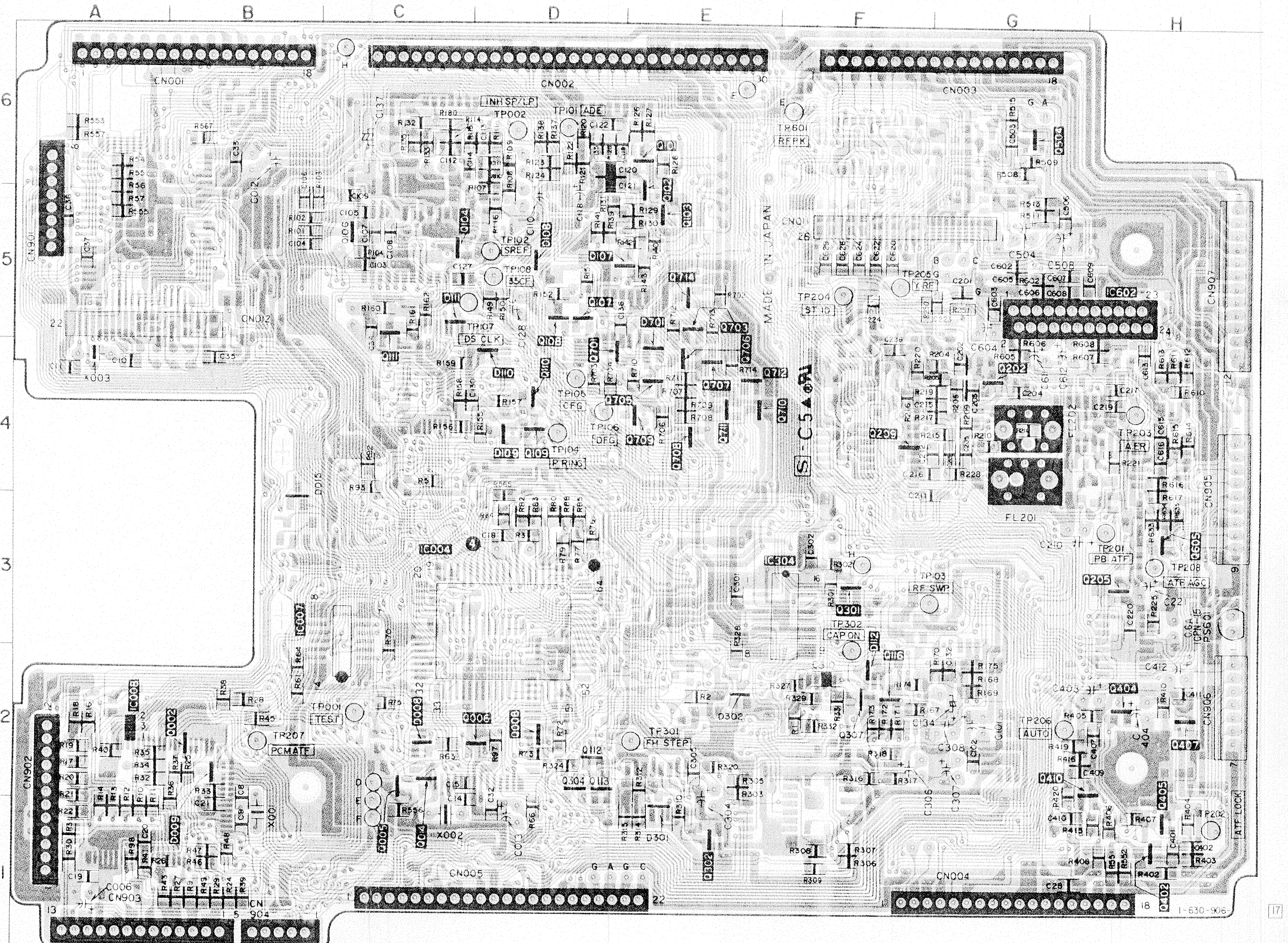
Q309	8-729-901-01	TRANSISTOR	DTC144EK
Q401	8-729-216-22	TRANSISTOR	2SA1162-G
Q402	8-729-100-66	TRANSISTOR	2SC1623-L6
Q403	8-729-100-66	TRANSISTOR	2SC1623-L6
Q404	8-729-216-22	TRANSISTOR	2SA1162-G
Q405	8-729-100-66	TRANSISTOR	2SC1623-L6
Q406	8-729-216-22	TRANSISTOR	2SA1162-G
Q407	8-729-100-66	TRANSISTOR	2SC1623-L6
Q408	8-729-216-22	TRANSISTOR	2SA1162-G
Q409	8-729-100-66	TRANSISTOR	2SC1623-L6
Q410	8-729-100-66	TRANSISTOR	2SC1623-L6
Q411	8-729-100-66	TRANSISTOR	2SC1623-L6
Q502	8-729-100-66	TRANSISTOR	2SC1623-L6
Q503	8-729-901-06	TRANSISTOR	DTA144EK
Q504	8-729-100-66	TRANSISTOR	2SC1623-L6
Q505	8-729-100-66	TRANSISTOR	2SC1623-L6
Q506	8-729-100-66	TRANSISTOR	2SC1623-L6
Q507	8-729-901-06	TRANSISTOR	DTA144EK
Q508	8-729-901-06	TRANSISTOR	DTA144EK
Q601	8-729-901-06	TRANSISTOR	DTA144EK
Q604	8-729-805-25	TRANSISTOR	2SB1121-S
Q605	8-729-100-66	TRANSISTOR	2SC1623-L6
Q606	8-729-901-06	TRANSISTOR	DTA144EK
Q701	8-729-901-06	TRANSISTOR	DTA144EK
Q702	8-729-901-06	TRANSISTOR	DTA144EK
Q703	8-729-901-01	TRANSISTOR	DTC144EK
Q704	8-729-216-22	TRANSISTOR	2SA1162-G
Q705	8-729-216-22	TRANSISTOR	2SA1162-G
Q706	8-729-100-66	TRANSISTOR	2SC1623-L6
Q707	8-729-100-66	TRANSISTOR	2SC1623-L6
Q708	8-729-901-06	TRANSISTOR	DTA144EK
Q709	8-729-901-06	TRANSISTOR	DTA144EK
Q710	8-729-901-06	TRANSISTOR	DTA144EK
Q711	8-729-901-06	TRANSISTOR	DTA144EK
Q712	8-729-901-06	TRANSISTOR	DTA144EK
Q713	8-729-901-01	TRANSISTOR	DTC144EK
Q714	8-729-901-01	TRANSISTOR	DTC144EK

SE-10P BOARD
(CONDUCTOR
SIDE)

D008	C-2
D009	B-1
D015	B-4
D107	D-5
D108	D-5
D109	D-4
D110	D-4
D111	C-5
D112	F-3
D203	H-3
D301	E-1
D302	E-2
D701	E-5
IC004	C-3
IC007	C-3
IC008	A-2
IC304	F-3
Q002	B-2
Q005	C-1
Q006	D-2
Q008	D-2
Q014	C-1
Q101	E-6
Q102	E-5
Q103	E-5
Q104	C-5
Q106	B-5
Q107	D-5
Q108	D-5
Q109	D-4
Q110	D-4
Q111	C-4
Q112	D-2
Q113	D-1
Q115	E-2
Q116	F-2
Q202	G-4
Q205	H-3
Q209	F-4
Q250	F-4
Q251	F-4
Q301	F-3
Q302	E-1
Q304	D-2
Q307	F-2
Q402	H-1
Q404	H-2
Q405	H-1
Q407	H-2
Q410	G-2
Q504	G-6
Q605	H-3
Q701	D-4
Q703	E-5
Q705	E-4
Q706	E-4
Q707	E-4
Q708	E-4
Q709	E-4
Q710	E-4
Q711	E-4
Q712	E-4
Q714	E-5



SE-10P BOARD (CONDUCTOR SIDE)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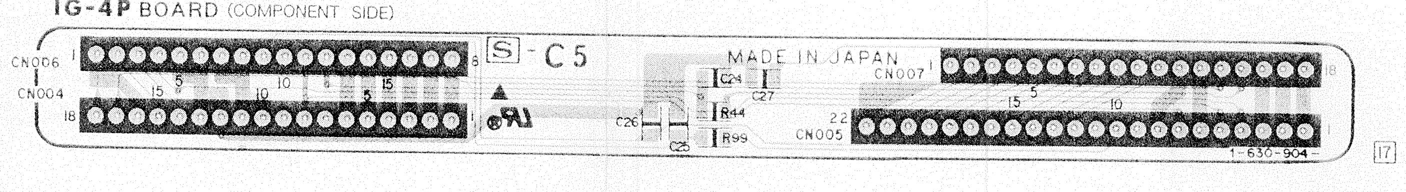
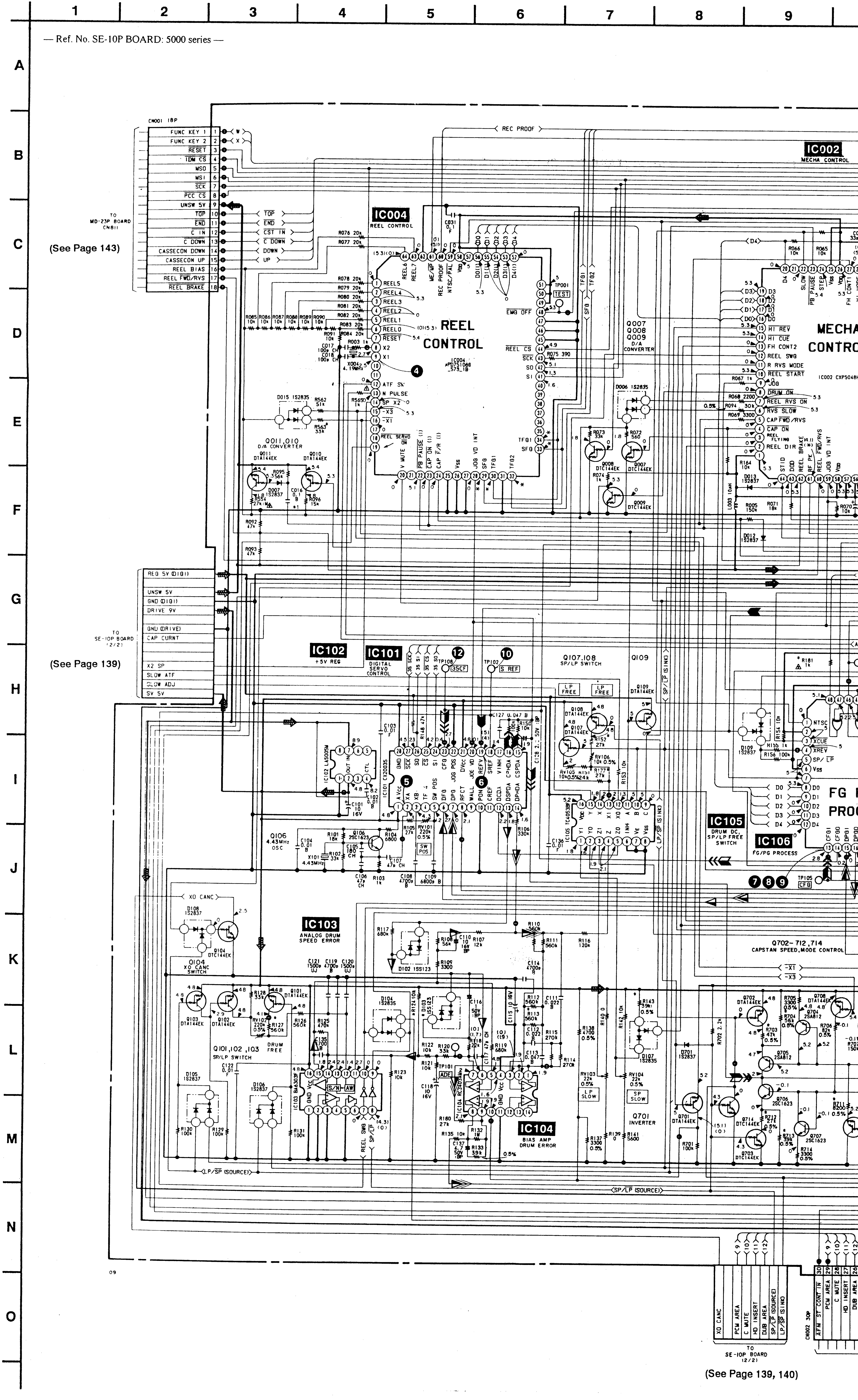
CN001
CN002
CN003
CN004
CN005
CN901
CN902
CN903
CN904
CN905
CN906
CN907
CN012
IC004
IC007
IC008
IC304
IC602
TP001 TEST
TP002 INH SP/LP
TP101 ADE
TP102 SREF
TP103 RF SWP
TP104 P.RING
TP105 CFG
TP106 DFG
TP107 DS CLK
TP108 35CF
TP201 PB ATF
TP202 ATF LOCK
TP203 AFR
TP204 ST-ID
TP205 Y RF
TP206 AUTO
TP207 PCMATF
TP208 ATF AGC
TP301 FM STEP
TP302 CAP ON
TP601 RFPK
FL201
X001
X002
X003
MADE IN JAPAN
S-C5
1-630-906
17

IG-4P BOARD (COMPONENT SIDE)


CN006
CN004
CN007
CN005
S-C5
MADE IN JAPAN
C24
C27
C26
R44
R99
1-630-904
17

SE-10P (SERVO, SYSTEM CONTROL) SCHEMATIC DIAGRAM

- Refer to page 132 for Printed Wiring Board.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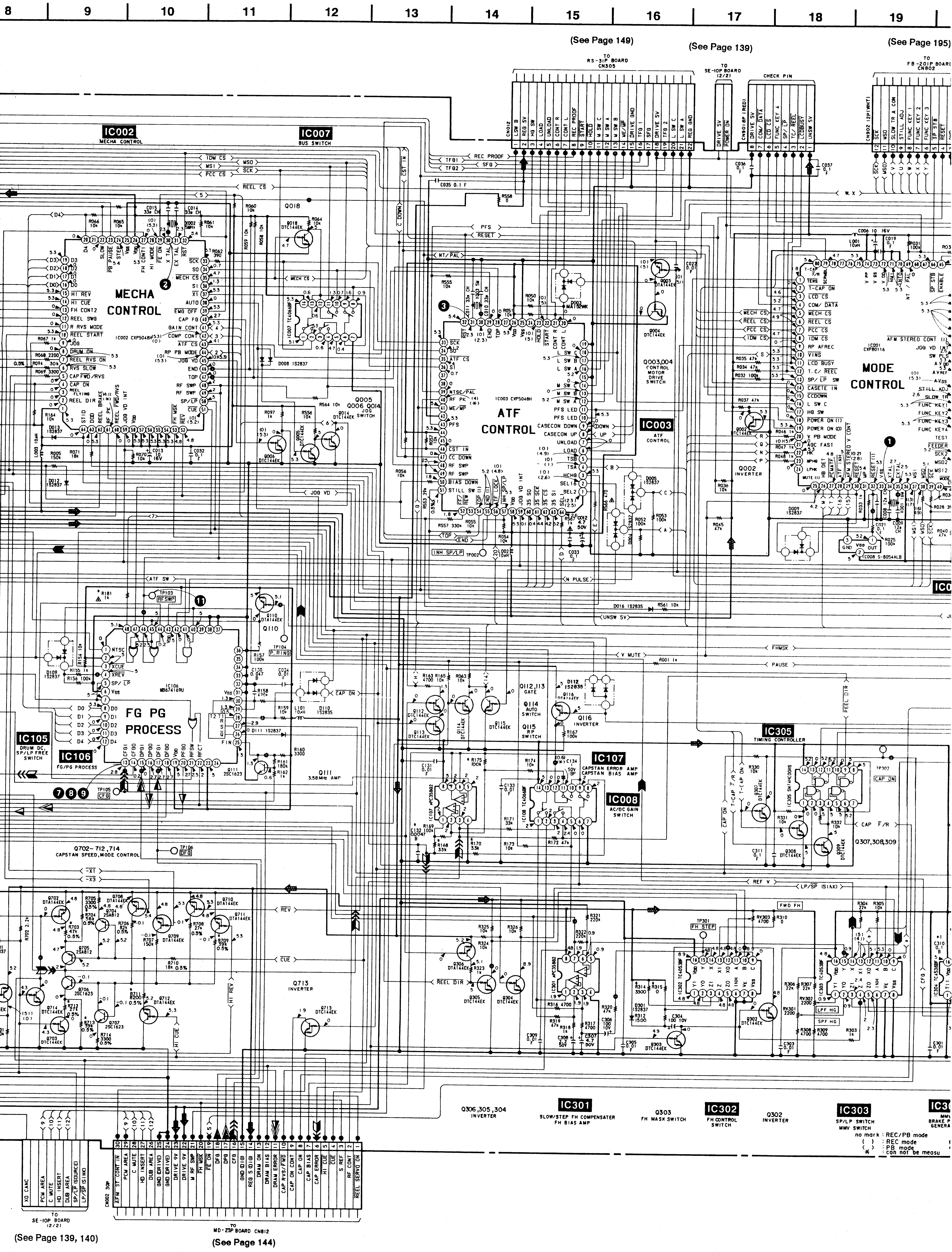
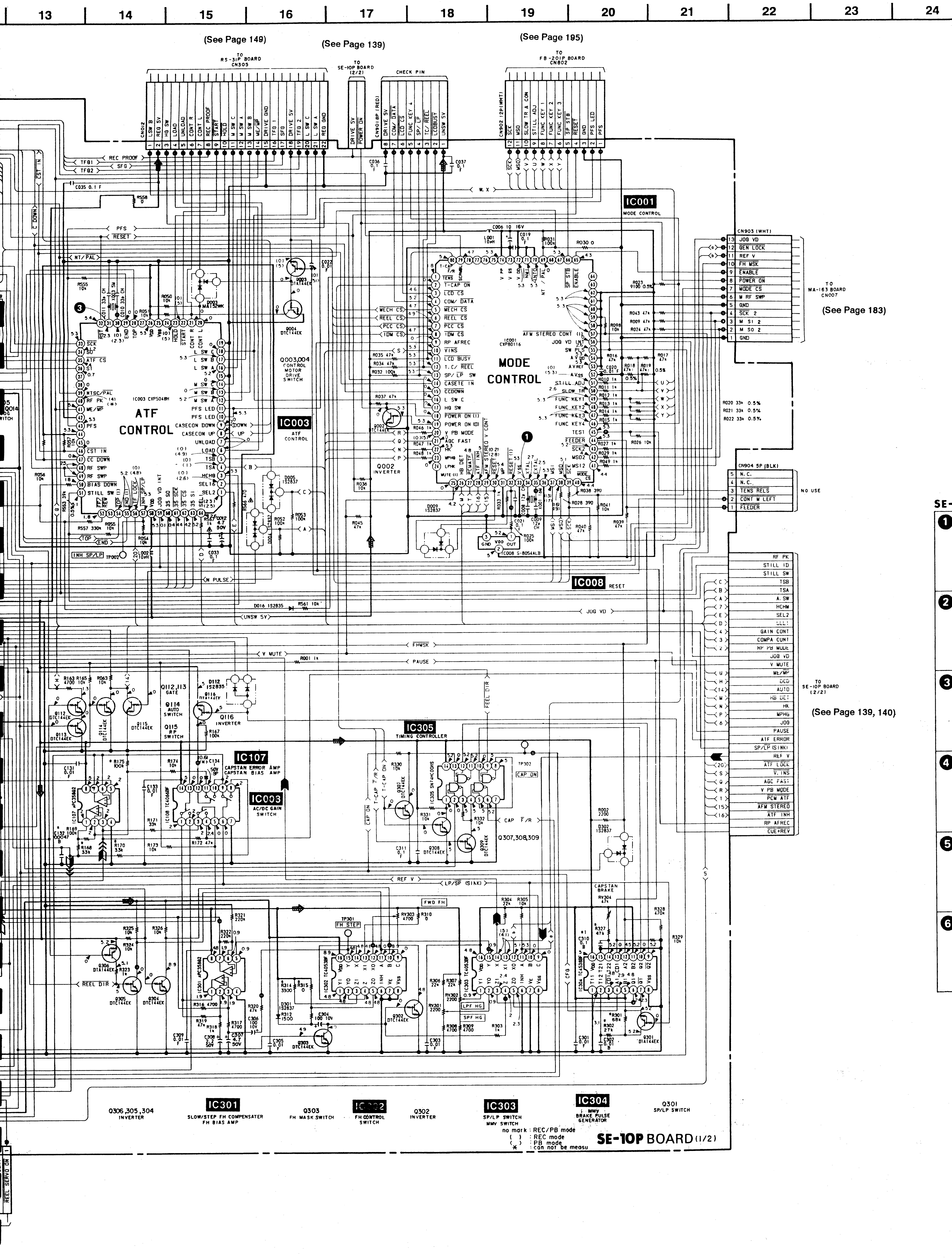
— Ref. No. SE-10P BOARD: 5000 series —
CN001 18P
FUNC KEY 1
FUNC KEY 2
RESET
IDM CS
MSO
MSI
SCK
PCC CS
UNSW 5V
TOP
END
C IN
C DOWN
CASSECON DOWN
CASSECON UP
REEL BIAS
REEL FWD/RVS
REEL BRAKE
TO MD-23P BOARD CN811
(See Page 143)
REC PROOF
IC004
REEL CONTROL
IC004 μPD75106G-573-1B
IC002
MECHA CONTROL
IC002 CXP5048H
Q007 Q008 Q009 D/A CONVERTER
Q011,010 D/A CONVERTER
REG 5V (DIGI)
UNSW 5V
GND (DIGI)
DRIVE 9V
GND (DRIVE)
CAP CURNT
X2 SP
SLOW ATF
SLOW ADJ
SV 5V
TO SE-10P BOARD (2/2)
(See Page 139)
IC102 +5V REG
IC101 DIGITAL SERVO CONTROL
IC101 CX20035
IC102 LA5005M
Q106 4.43MHz OSC
Q107,108 SP/LP SWITCH
Q109
IC105 DRUM DC, SP/LP FREE SWITCH
IC105 TC4053BF
IC106 FG/PG PROCESS
FG PROC
IC103 ANALOG DRUM SPEED ERROR
IC103 BA6305F
IC104 BIAS AMP DRUM ERROR
Q104 XO CANC SWITCH
Q101,102,103 SP/LP SWITCH
Q701 INVERTER
Q702-712,714 CAPSTAN SPEED, MODE CONTROL
LP FREE
LP SLOW
SP SLOW
LP/SP (SOURCE)
SP/LP (SOURCE)
XO CANC
PCM AREA
C MUTE
HD INSERT
DUB AREA
SP/LP (SOURCE)
LP/SP (SINK)
CN002 30P
AFM ST CONT IN
PCM AREA
C MUTE
HD INSERT
DUB AREA
TO SE-10P BOARD (2/2)
(See Page 139, 140)


8
9
10
11
12
13
14
15
16
17
18
19
(See Page 149)
(See Page 139)
(See Page 195)
TO RS-31P BOARD CN305
TO SE-10P BOARD (2/2)
CHECK PIN
TO FB-201P BOARD CN802
IC002
MECHA CONTROL
IC007
BUS SWITCH
MECHA CONTROL
IC002 CXP5048H
ATF CONTROL
IC003 CXP5048H
IC003
ATF CONTROL
MODE CONTROL
IC001 CXP80116
Q018
Q005 Q006 Q014 JOG SWITCH
Q003,004 CONTROL MOTOR DRIVE SWITCH
Q002 INVERTER
FG PG PROCESS
IC106 MB674169U
IC105
DRUM DC, SP/LP FREE SWITCH
IC106
FG/PG PROCESS
Q110
Q111 3.58MHz AMP
Q112,113 GATE
Q114 AUTO SWITCH
Q115 RP SWITCH
Q116 INVERTER
IC107
CAPSTAN ERROR AMP CAPSTAN BIAS AMP
IC008
AC/DC GAIN SWITCH
IC305
TIMING CONTROLLER
Q307,308,309
Q702-712,714
CAPSTAN SPEED, MODE CONTROL
Q713 INVERTER
Q306,305,304 INVERTER
IC301
SLOW/STEP FH COMPENSATER FH BIAS AMP
Q303 FH MASK SWITCH
IC302
FH CONTROL SWITCH
Q302 INVERTER
IC303
SP/LP SWITCH MMV SWITCH
no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
* : can not be measu
TO SE-10P BOARD (2/2)
(See Page 139, 140)
TO MD-23P BOARD CN812
(See Page 144)
CN002 30P


13
14
15
16
17
18
19
20
21
22
23
24
(See Page 149)
TO RS-31P BOARD CN305
(See Page 139)
TO SE-10P BOARD (2/2)
CHECK PIN
(See Page 195)
TO FB-201P BOARD CN802
IC001
MODE CONTROL
CN903 (WHT)
TO MA-163 BOARD CN007
(See Page 183)
CN904 5P (BLK)
NO USE
ATF CONTROL
IC003
ATF CONTROL
IC003 CXP5048H
MODE CONTROL
IC001 CXP80116
Q003,004 CONTROL MOTOR DRIVE SWITCH
Q002 INVERTER
IC008
RESET
TO SE-10P BOARD (2/2)
(See Page 139, 140)
IC305
TIMING CONTROLLER
IC107
CAPSTAN ERROR AMP
CAPSTAN BIAS AMP
IC003
AC/DC GAIN SWITCH
Q112,113 GATE
Q114 AUTO SWITCH
Q115 RP SWITCH
Q116 INVERTER
Q307,308,309
CAPSTAN BRAKE
Q306,305,304 INVERTER
IC301
SLOW/STEP FH COMPENSATER
FH BIAS AMP
Q303 FH MASK SWITCH
IC302
FH CONTROL SWITCH
Q302 INVERTER
IC303
SP/LP SWITCH
MMV SWITCH
IC304
MMV
BRAKE PULSE GENERATOR
Q301 SP/LP SWITCH
REEL SERVO ON

no mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
* : can not be measu

SE-10P BOARD (1/2)

TO
MA-163 BOARD
CN007

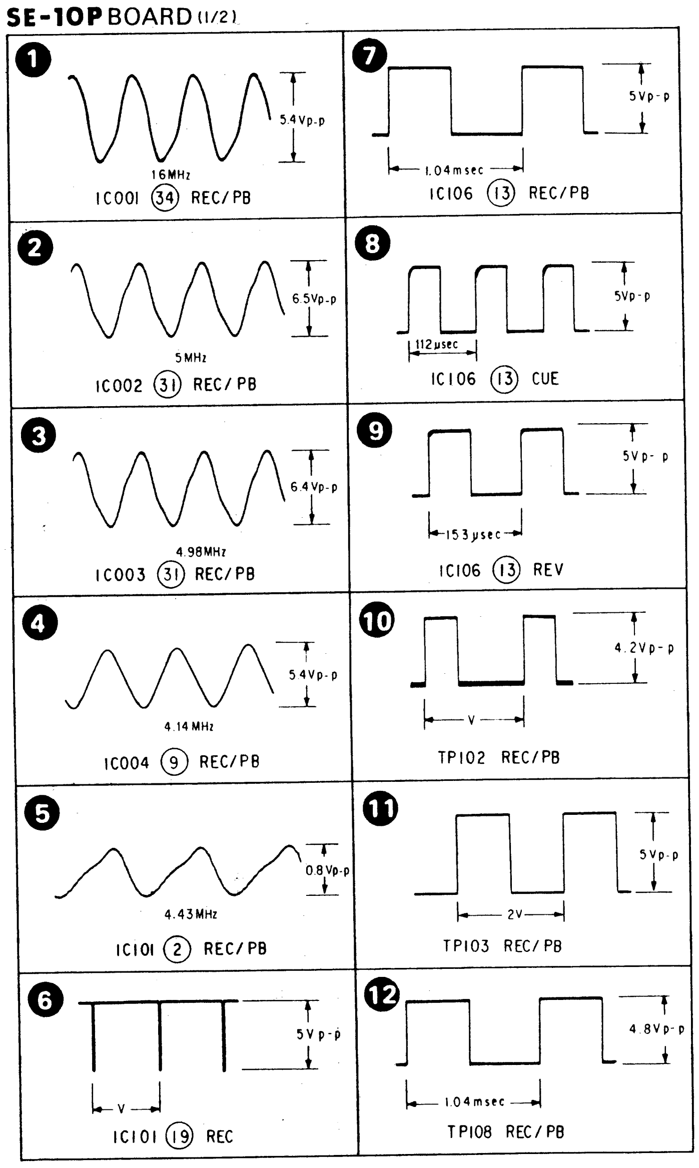
(See Page 183)

NO USE

TO
SE-10P BOARD
(2/2)

(See Page 139, 140)

SE-10P BOARD (1/2)



- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷›	
Drum servo (speed and phase)		▷››	
Capstan speed servo		➩	
Capstan phase servo		➩›	
Capstan servo (speed and phase)		➩››	
Ref. signal	➧		

- **SIGNAL PATH**

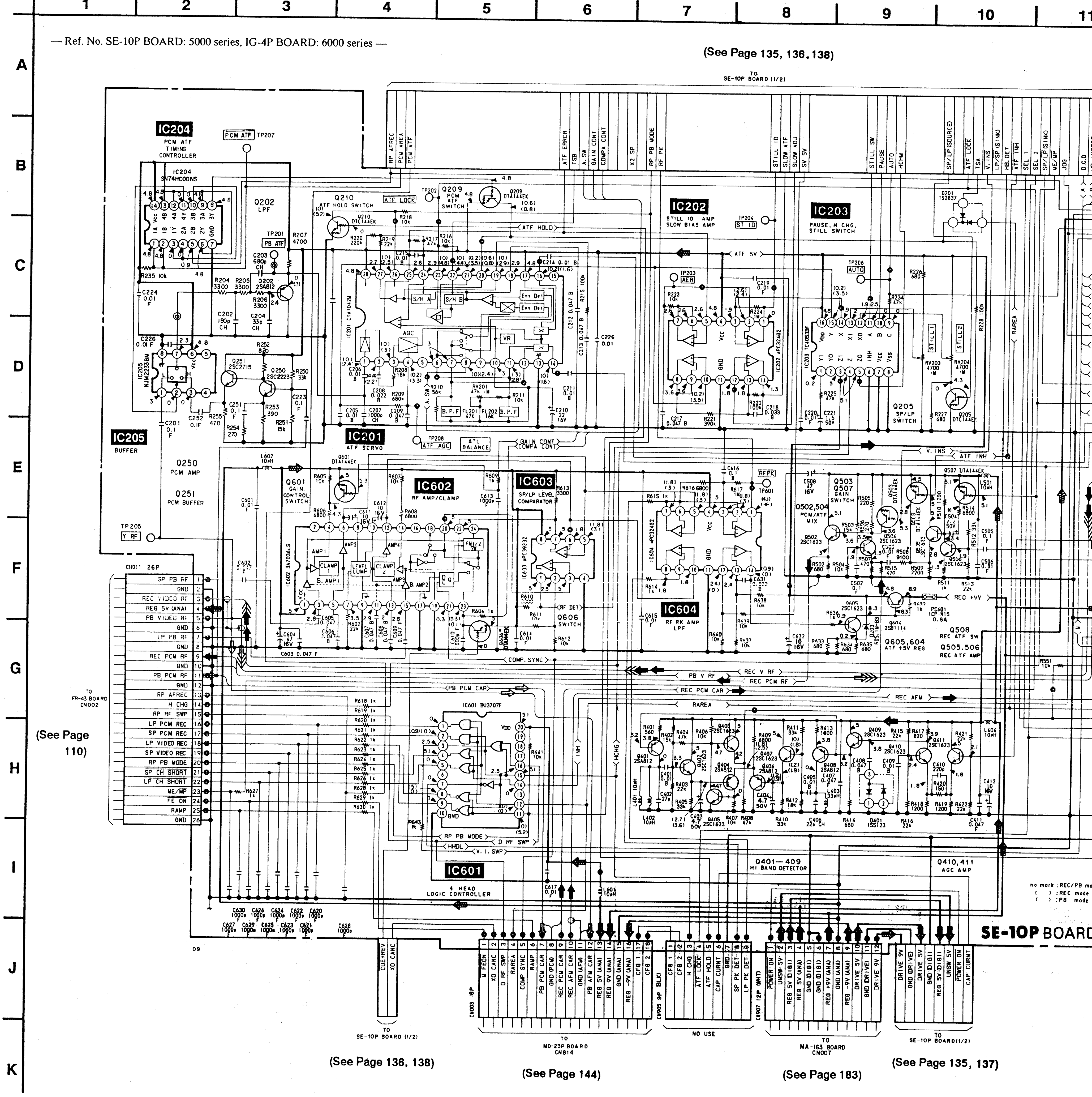
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡》	➡
PB			⇨》	⇨

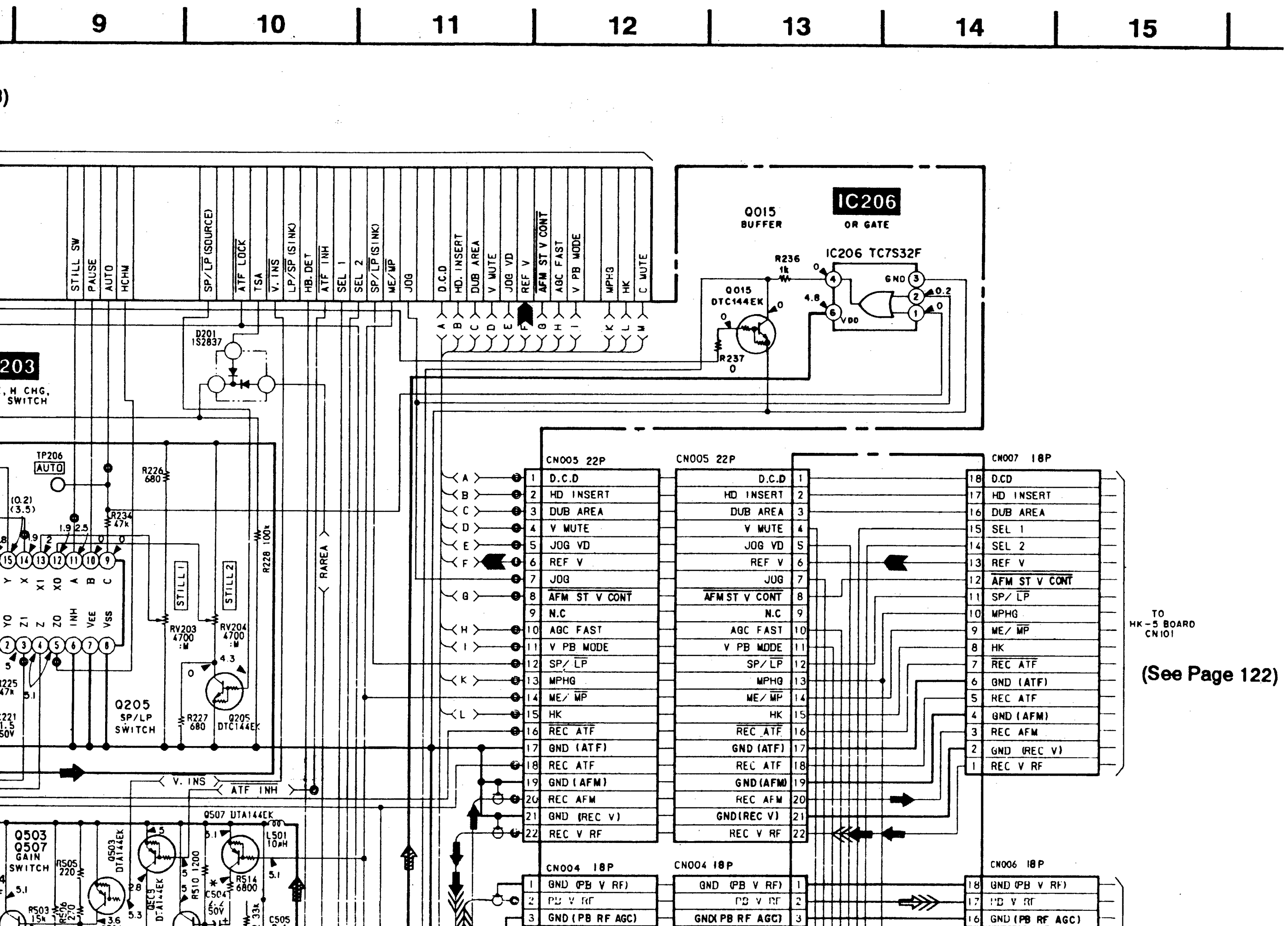
- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal	➤		

SE-10P (ATF SERVO), IG-4P (BOARD LINK) SCHEMATIC DIAGRAMS

- Refer to page 132 for Printed Wiring Board.


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
— Ref. No. SE-10P BOARD: 5000 series, IG-4P BOARD: 6000 series —
(See Page 135, 136, 138)
TO SE-10P BOARD (1/2)
IC204
PCM ATF TIMING CONTROLLER
IC204 SN74HC00NS
PCM ATF TP207
Q202 LPF
TP201 PB ATF
IC205 NJM2233BM
IC205 BUFFER
Q250 PCM AMP
Q251 PCM BUFFER
TP205 Y RF
Q210 ATF HOLD SWITCH
Q209 PCM ATF SWITCH
ATF LOCK
ATF HOLD
IC201 CX10424
IC201 ATF SERVO
S/H A
S/H B
Env Det
AGC
VR
B.P.F
TP208 ATF AGC
ATL BALANCE
GAIN CONT
COMPA CONT
IC202
STILL ID AMP SLOW BIAS AMP
TP204 ST ID
TP203 AER
IC202 µPC324G2
IC203
PAUSE, H CHG, STILL SWITCH
TP206 AUTO
IC203 TC4053BF
STILL 1
STILL 2
Q205 SP/LP SWITCH
ATF 5V
RAREA
V. INS
ATF INH
Q601 GAIN CONTROL SWITCH
IC602
RF AMP/CLAMP
IC602 SA7036LS
AMP 1
AMP 2
AMP 3
AMP 4
CLAMP 1
CLAMP 2
LEVEL CLAMP
B. AMP 1
B. AMP 2
IC603
SP/LP LEVEL COMPARATOR
IC603 µPC393G
Q606 SWITCH
RF DET
COMP. SYNC
IC604
RF RK AMP LPF
IC604 µPC324G2
RFPK
TP601
Q503 Q507 GAIN SWITCH
Q502,504 PCM/ATF MIX
Q508 REC ATF SW
Q605,604 ATF +5V REG
Q505,506 REC ATF AMP
REC +9V
CN011 26P
SP PB RF
GND
REC VIDEO RF
REG 5V (ANA)
PB VIDEO RF
GND
LP PB RF
GND
REC PCM RF
GND
PB PCM RF
GND
RP AFREC
H CHG
RP RF SWP
LP PCM REC
SP PCM REC
LP VIDEO REC
SP VIDEO REC
RP PB MODE
SP CH SHORT
LP CH SHORT
ME/MP
FE ON
RAMP
GND
TO FR-43 BOARD CN002
(See Page 110)
PB V RF
REC V RF
REC PCM RF
PB PCM CAR
REC PCM CAR
REC AFM
RAREA
IC601 BU3707F
IC601
4 HEAD LOGIC CONTROLLER
RP PB MODE
D RF SWP
HHDL
V. I. SWP
INH
HCHG
Q401—409 HI BAND DETECTOR
Q410,411 AGC AMP
no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
SE-10P BOARD
CUE/REV
XO CANC
TO SE-10P BOARD (1/2)
(See Page 136, 138)
CN903 18P
M FEON
XO CANC
D RF SWP
RAREA
COMP SYNC
RAMP
PB PCM CAR
GND (PCM)
REC PCM CAR
REC AFM CAR
GND (AFM)
PB AFM CAR
REG 5V (ANA)
REG 9V (ANA)
GND (ANA)
REG -9V (ANA)
CFB 1
CFB 2
TO MD-23P BOARD CN814
(See Page 144)
CN905 9P (BLK)
CFB 1
CFB 2
H CHG
ATF LOCK
ATF HOLD
CAP CURNT
GND
SP PK DET
LP PK DET
NO USE
CN907 12P (WHT)
POWER ON
UNSW 5V
REG 5V (D)
GND (D)
REG +9V (ANA)
GND (ANA)
REG -9V (ANA)
GND (DRIVE)
DRIVE 5V
DRIVE 9V
TO MA-163 BOARD CN007
(See Page 183)
DRIVE 9V
GND (DRIVE)
DRIVE 5V
GND (D)
REG 5V (D)
UNSW 5V
POWER ON
CAP CURNT
TO SE-10P BOARD (1/2)
(See Page 135, 137)


9
10
11
12
13
14
15
IC206
Q015 BUFFER
OR GATE
IC206 TC7S32F
Q015 DTC144EK
R236 1k
R237 0
CN005 22P
1 D.C.D
2 HD INSERT
3 DUB AREA
4 V MUTE
5 JOG VD
6 REF V
7 JOG
8 AFM ST V CONT
9 N.C
10 AGC FAST
11 V PB MODE
12 SP/LP
13 MPHG
14 ME/MP
15 HK
16 REC ATF
17 GND (ATF)
18 REC ATF
19 GND (AFM)
20 REC AFM
21 GND (REC V)
22 REC V RF
CN007 18P
18 D.CD
17 HD INSERT
16 DUB AREA
15 SEL 1
14 SEL 2
13 REF V
12 AFM ST V CONT
11 SP/LP
10 MPHG
9 ME/MP
8 HK
7 REC ATF
6 GND (ATF)
5 REC ATF
4 GND (AFM)
3 REC AFM
2 GND (REC V)
1 REC V RF
TO HK-5 BOARD CN101
(See Page 122)
CN004 18P
1 GND (PB V RF)
2 PB V RF
3 GND (PB RF AGC)
4 PB RF AGC
5 V. I. SWP
6 COMP. SYNC
7 N.C
8 N.C
9 N.C
10 REG 5V (ANA)
11 REG 5V (ANA)
12 GND (ANA)
13 GND (ANA)
14 HH DELAY
15 C MUTE
16 REG 9V
17 SEL 1
18 SEL 2
CN006 18P
18 GND (PB V RF)
17 PB V RF
16 GND (PB RF AGC)
15 PB RF AGC
14 V. I. SWP
13 COMP SYNC
12 V MUTE
11 JOG
10 AGC FAST
9 V PB MODE
8 REG 5V (ANA)
7 REG 5V (ANA)
6 GND (ANA)
5 GND (ANA)
4 JOG VD
3 HH DELAY
2 C MUTE
1 REG 9V
TO HK-5 BOARD CN102
(See Page 123)
CN906 7P (RED)
1 P REC
2 SEL 1
3 SEL 2
4 P ATF LOCK
5 P SEL 1
6 P SEL 2
7 GND
CHECK PIN (TAPE PASS ADJ)
IG-4P BOARD
CHASSIS GND
Q205 SP/LP SWITCH
Q503 Q507 GAIN SWITCH
Q508 REC ATF SW
Q605,604 ATF +5V REG
Q505,506 REC ATF AMP
Q410,411 AGC AMP
no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
SE-10P BOARD (2/2)
TO SE-10P BOARD (1/2)
(See Page 135, 137)
age 183)

D/SYSTEM CONTROL

MD-23P (CAPSTAN/REEL/DRUM MOTOR DRIVE), TS-7

— Ref. No. MD-23P, TS-74P (L) BOARDS: 1000 series, TS-74P (R) BOARD:

(DIODE)

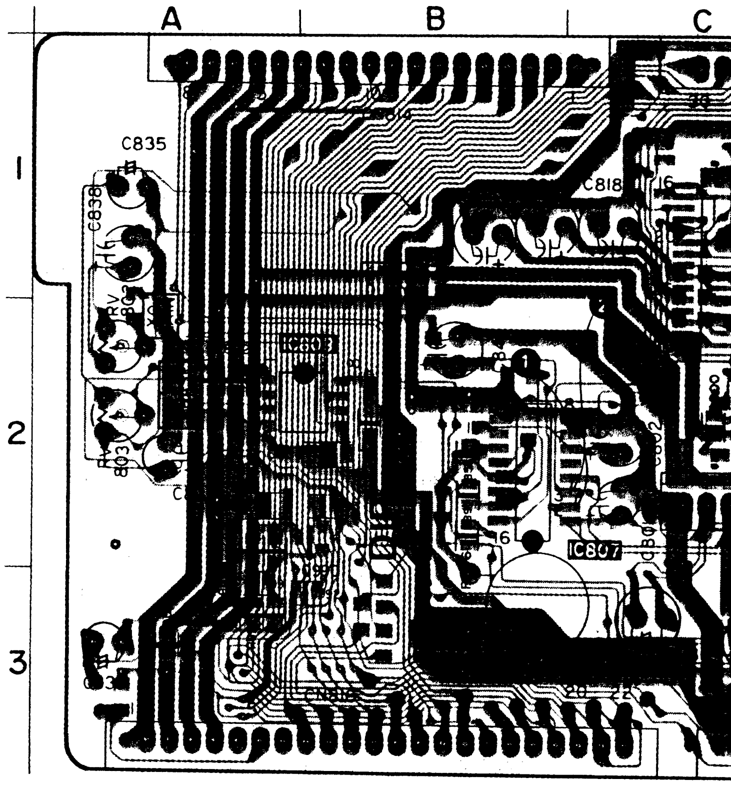
D803	8-719-200-27	DIODE	E10DS2
D810	8-719-400-18	DIODE	MA152WK
D811	8-719-200-27	DIODE	E10DS2
D901	8-719-400-18	DIODE	MA152WK
D902	8-719-400-18	DIODE	MA152WK
D903	8-719-400-18	DIODE	MA152WK
D904	8-719-800-76	DIODE	1SS226
D905	8-719-400-18	DIODE	MA152WK

(IC)

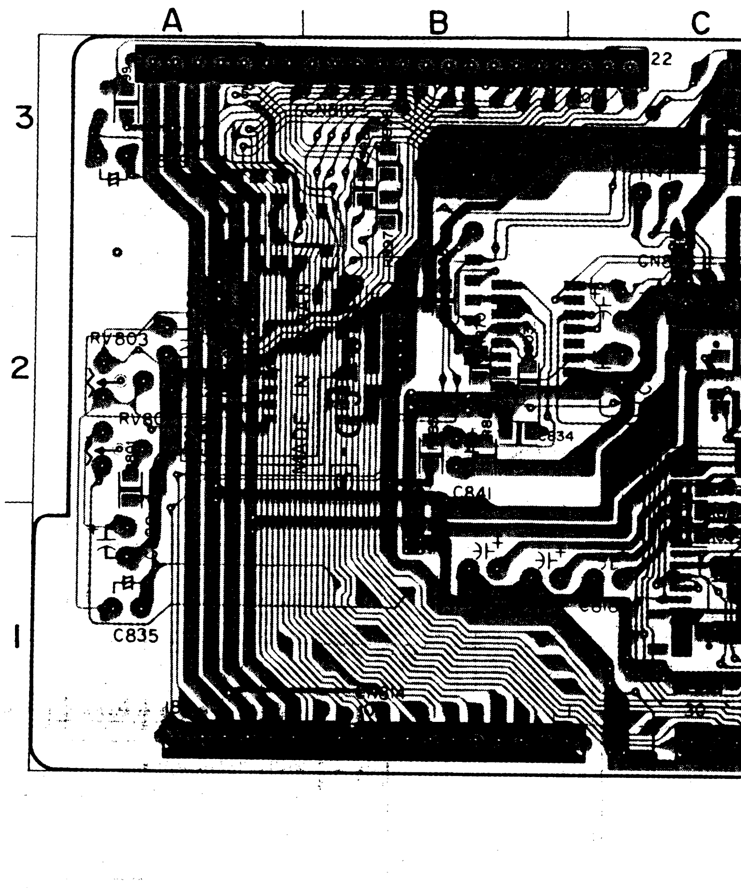
IC801	8-752-037-08	IC	CXA1109M
IC802	8-759-040-65	IC	LB1686M
IC804	8-759-701-24	IC	NJM3414M
IC805	8-759-100-93	IC	uPC393G2
IC806	8-759-207-00		
IC807	8-759-107-68		
IC808	8-759-700-62		
IC809	8-759-100-94		
IC901	8-759-207-50		
IC902	8-759-150-05		
IC903	8-759-925-66		
IC904	8-759-008-67		

Q806	8-729-111-14
Q807	8-729-901-06
Q809	8-729-111-95
Q810	8-729-805-25
Q811	8-729-805-25

MD-23P BOARD (COMPONENT SIDE)


A
B
C
1
2
3
C835
C838
C818
C807
RV80

MD-23P BOARD (CONDUCTOR SIDE)


A
B
C
3
2
1
22
RV803
RV80
C841
C835
CN8

MD-23P (CAPSTAN/REEL/DRUM MOTOR DRIVE), TS-74P (R) (TAPE TOP SENSOR), TS-74P (L) (TAPE END SENSOR) PRINTED WIRING BOARDS

— Ref. No. MD-23P, TS-74P (L) BOARDS: 1000 series, TS-74P (R) BOARD: 2000 series —

(DIODE)

D803	8-719-200-27	DIODE	E10DS2
D810	8-719-400-18	DIODE	MA152WK
D811	8-719-200-27	DIODE	E10DS2
D901	8-719-400-18	DIODE	MA152WK
D902	8-719-400-18	DIODE	MA152WK
D903	8-719-400-18	DIODE	MA152WK
D904	8-719-800-76	DIODE	1SS226
D905	8-719-400-18	DIODE	MA152WK

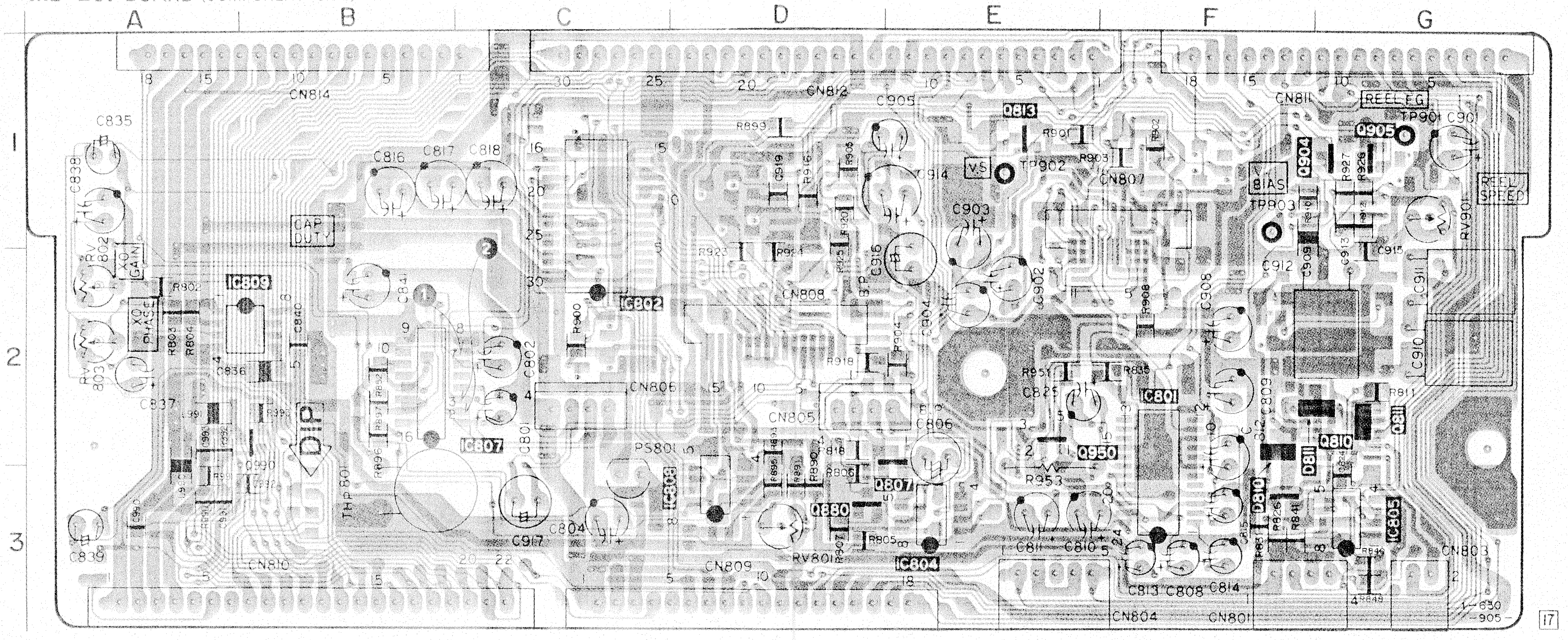
(IC)

IC801	8-752-037-08	IC	CXA1109M
IC802	8-759-040-65	IC	LB1686M
IC804	8-759-701-24	IC	NJM3414M
IC805	8-759-100-93	IC	uPC393G2
IC806	8-759-207-00	IC	TA7733F
IC807	8-759-107-68	IC	CX20115A
IC808	8-759-700-62	IC	NJM4562D
IC809	8-759-100-94	IC	uPC358G2
IC901	8-759-207-50	IC	TA7745F
IC902	8-759-150-05	IC	uPC324G2-E1
IC903	8-759-925-66	IC	BA6303F
IC904	8-759-008-67	IC	MC14066BF

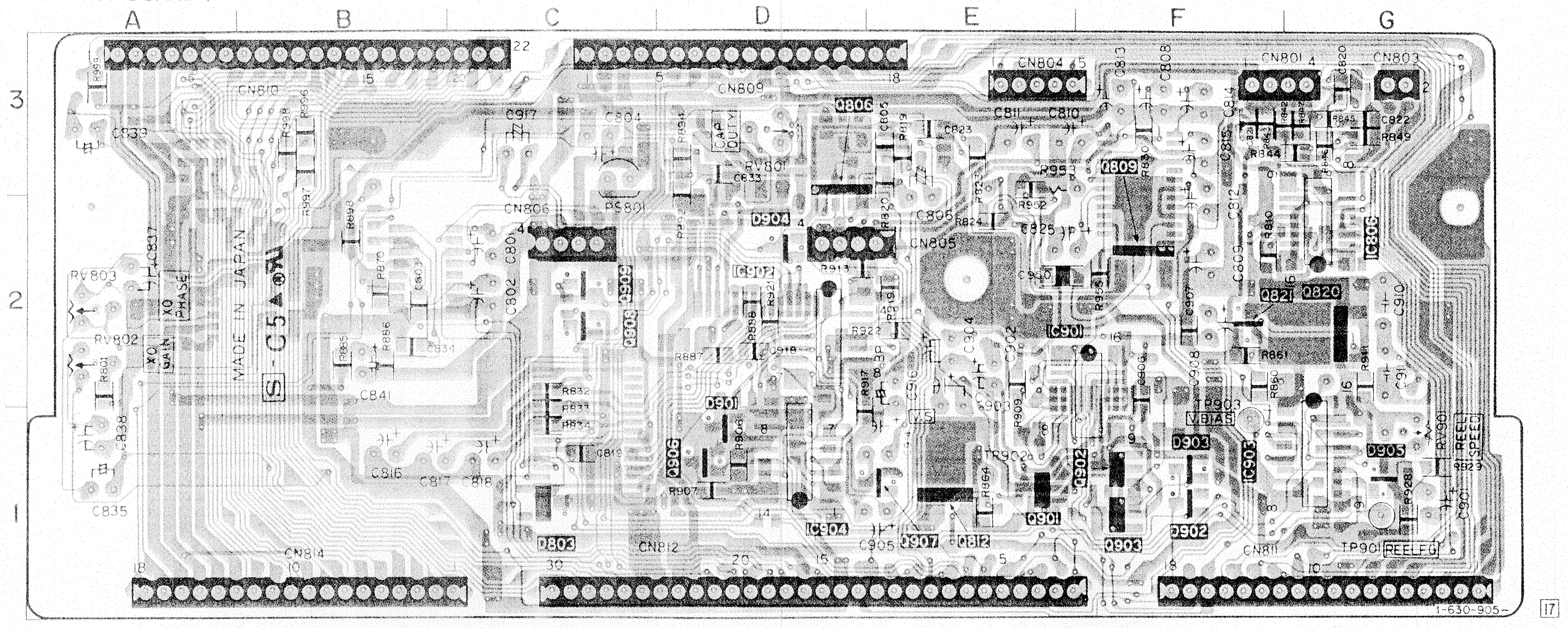
(TRANSISTOR)

Q806	8-729-111-14	TRANSISTOR	2SA1385-Z-L
Q807	8-729-901-06	TRANSISTOR	DTA144EK
Q809	8-729-111-95	TRANSISTOR	2SC3518-ZL
Q810	8-729-805-25	TRANSISTOR	2SB1121-S
Q811	8-729-805-25	TRANSISTOR	2SB1121-S
Q812	8-729-111-14	TRANSISTOR	2SA1385-Z-L
Q813	8-729-100-66	TRANSISTOR	2SC1623-L6
Q820	8-729-111-95	TRANSISTOR	2SC3518-ZL
Q821	8-729-100-66	TRANSISTOR	2SC1623-L6
Q880	8-729-100-66	TRANSISTOR	2SC1623-L6
Q901	8-729-920-82	TRANSISTOR	2SB1188-QR
Q902	8-729-920-82	TRANSISTOR	2SB1188-QR
Q903	8-729-920-82	TRANSISTOR	2SB1188-QR
Q904	8-729-901-06	TRANSISTOR	DTA144EK
Q905	8-729-901-06	TRANSISTOR	DTA144EK
Q906	8-729-901-01	TRANSISTOR	DTC144EK
Q907	8-729-901-01	TRANSISTOR	DTC144EK
Q908	8-729-901-01	TRANSISTOR	DTC144EK
Q909	8-729-901-06	TRANSISTOR	DTA144EK
Q950	8-729-903-97	TRANSISTOR	FMS1FE
Q990	8-729-100-66	TRANSISTOR	2SC1623-L

MD-23P BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
1
2
3
CN814
CN812
CN811
CN810
CN809
CN808
CN807
CN806
CN805
CN804
CN803
CN801
IC801
IC802
IC803
IC804
IC805
IC807
IC808
IC809
Q805
Q807
Q810
Q811
Q813
Q880
Q904
Q905
Q950
CAP DUTY
XO PHASE
XO GAIN
DIP
V.S
BIAS
REEL FG
REEL SPEED
TP901
TP902
TP903
PS801
RV801
RV802
RV803
RV901
THP801
1-630-905-
17

MD-23P BOARD (CONDUCTOR SIDE)


A
B
C
D
E
F
G
3
2
1
CN810
CN809
CN806
CN805
CN804
CN801
CN803
CN812
CN814
CN811
IC901
IC902
IC903
IC904
IC806
Q806
Q809
Q820
Q821
Q901
Q902
Q903
Q906
Q907
Q908
Q909
D801
D803
D804
D903
D902
D905
D904
CAP DUTY
XO PHASE
XO GAIN
V.BIAS
V.S
REEL FG
REEL SPEED
PS801
RV801
RV802
RV803
RV901
TP901
TP902
MADE IN JAPAN
1-630-905-
17

S-74P (R) (TAPE TOP SENSOR), TS-74P (L) (TAPE END SENSOR) PRINTED WIRING BOARDS

RD: 2000 series —

7-00 IC TA7733F

7-68 IC CX20115A
0-62 IC NJM4562D
0-94 IC uPC358G2
7-50 IC TA7745F
0-05 IC uPC324G2-E1

5-66 IC BA6303F
8-67 IC MC14066BF

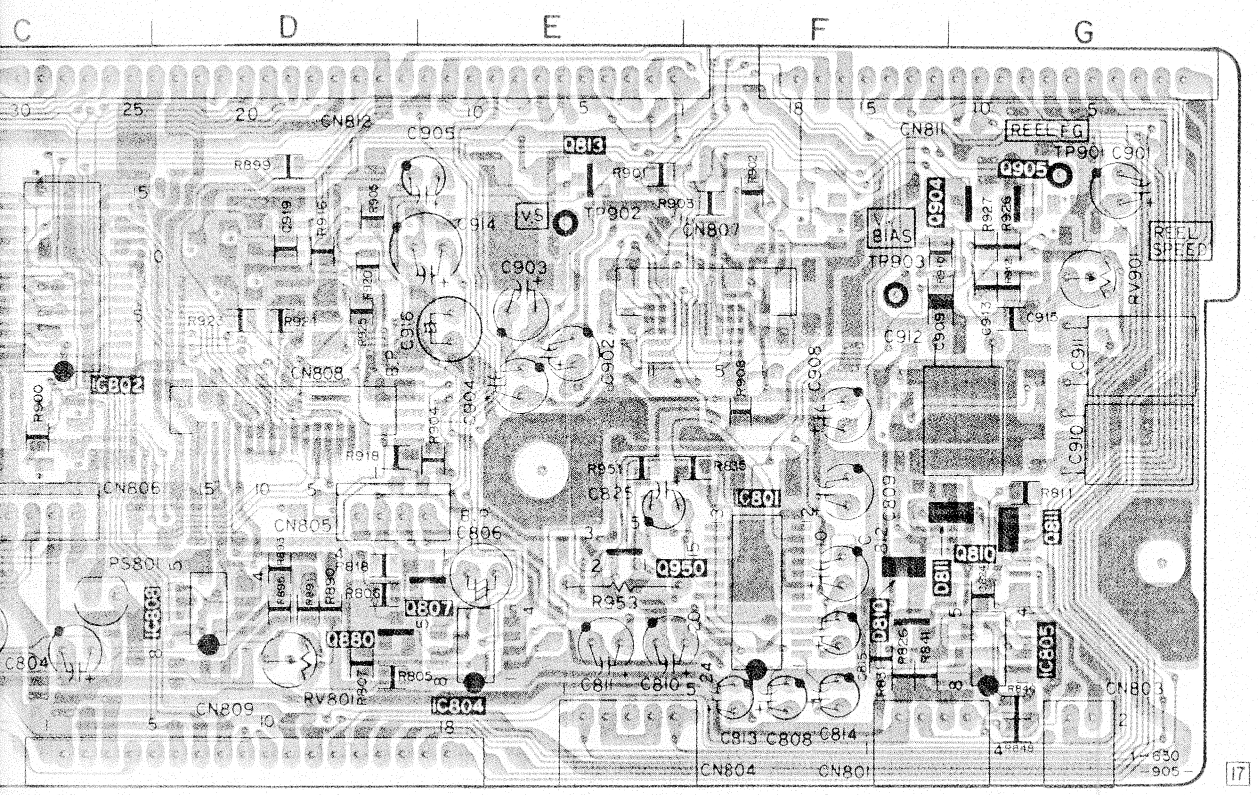
〈 TRANSISTOR 〉

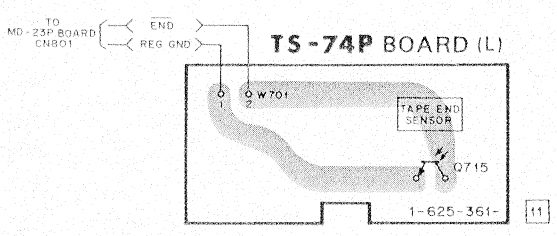
11-14 TRANSISTOR 2SA1385-Z-L
01-06 TRANSISTOR DTA144EK
11-95 TRANSISTOR 2SC3518-ZL
05-25 TRANSISTOR 2SB1121-S
05-25 TRANSISTOR 2SB1121-S

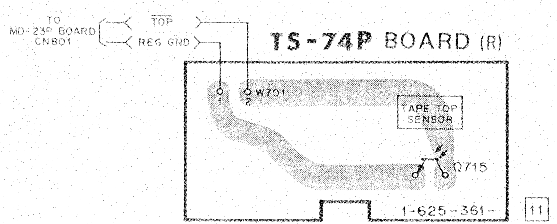
Q812	8-729-111-14	TRANSISTOR	2SA1385-Z-L
Q813	8-729-100-66	TRANSISTOR	2SC1623-L6
Q820	8-729-111-95	TRANSISTOR	2SC3518-ZL
Q821	8-729-100-66	TRANSISTOR	2SC1623-L6
Q880	8-729-100-66	TRANSISTOR	2SC1623-L6
Q901	8-729-920-82	TRANSISTOR	2SB1188-QR
Q902	8-729-920-82	TRANSISTOR	2SB1188-QR
Q903	8-729-920-82	TRANSISTOR	2SB1188-QR
Q904	8-729-901-06	TRANSISTOR	DTA144EK
Q905	8-729-901-06	TRANSISTOR	DTA144EK
Q906	8-729-901-01	TRANSISTOR	DTC144EK
Q907	8-729-901-01	TRANSISTOR	DTC144EK
Q908	8-729-901-01	TRANSISTOR	DTC144EK
Q909	8-729-901-06	TRANSISTOR	DTA144EK
Q950	8-729-903-97	TRANSISTOR	FMS1FE
Q990	8-729-100-66	TRANSISTOR	2SC1623-L6

〈 TRANSISTOR 〉

Q715	8-729-700-11	TRANSISTOR	NJL7141E-N


C
D
E
F
G
CN812
CN811
REEL FG
TP901
VS
TP902
CN807
BIAS
TP903
REEL SPEED
RV901
IC802
CN808
CN806
CN805
PS801
IC801
Q950
Q810
Q811
D810
D811
IC805
IC808
Q807
Q880
IC804
Q813
Q904
Q905
CN809
RV801
CN803
CN804
CN801
1-630-905-
17


TO MD-23P BOARD CN801
END
REG GND
TS-74P BOARD (L)
W701
TAPE END SENSOR
Q715
1-625-361-
11

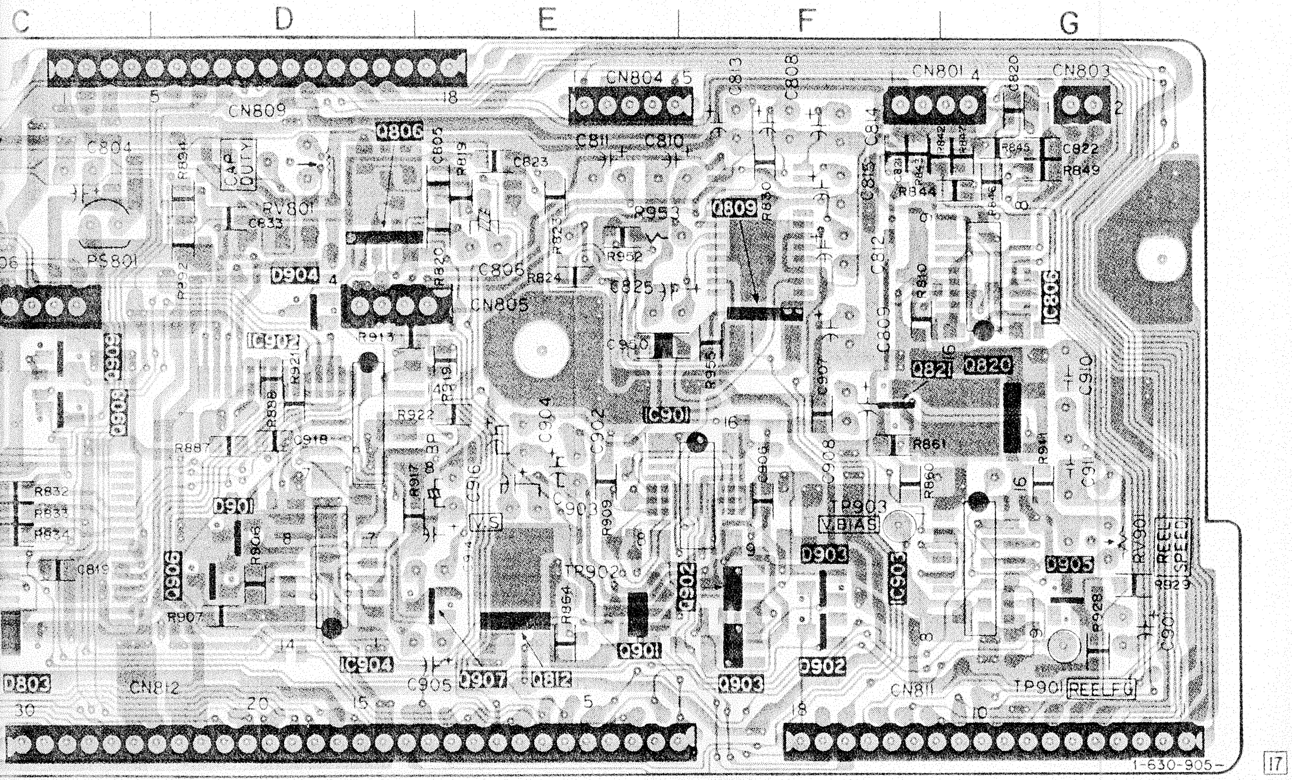

TO MD-23P BOARD CN801
TOP
REG GND
TS-74P BOARD (R)
W701
TAPE TOP SENSOR
Q715
1-625-361-
11

〈 TRANSISTOR 〉

Q715	8-729-700-11	TRANSISTOR	NJL7141E-N

MD-23P BOARD
(COMPONENT
SIDE)

D810	F-3
D811	F-3
IC801	F-2
IC802	C-2
IC804	E-3
IC805	G-3
IC807	B-2
IC808	D-3
IC809	A-2
Q807	E-3
Q810	G-2
Q811	G-2
Q813	E-1
Q880	D-3
Q904	F-1
Q905	G-1
Q950	E-2
Q990	B-2

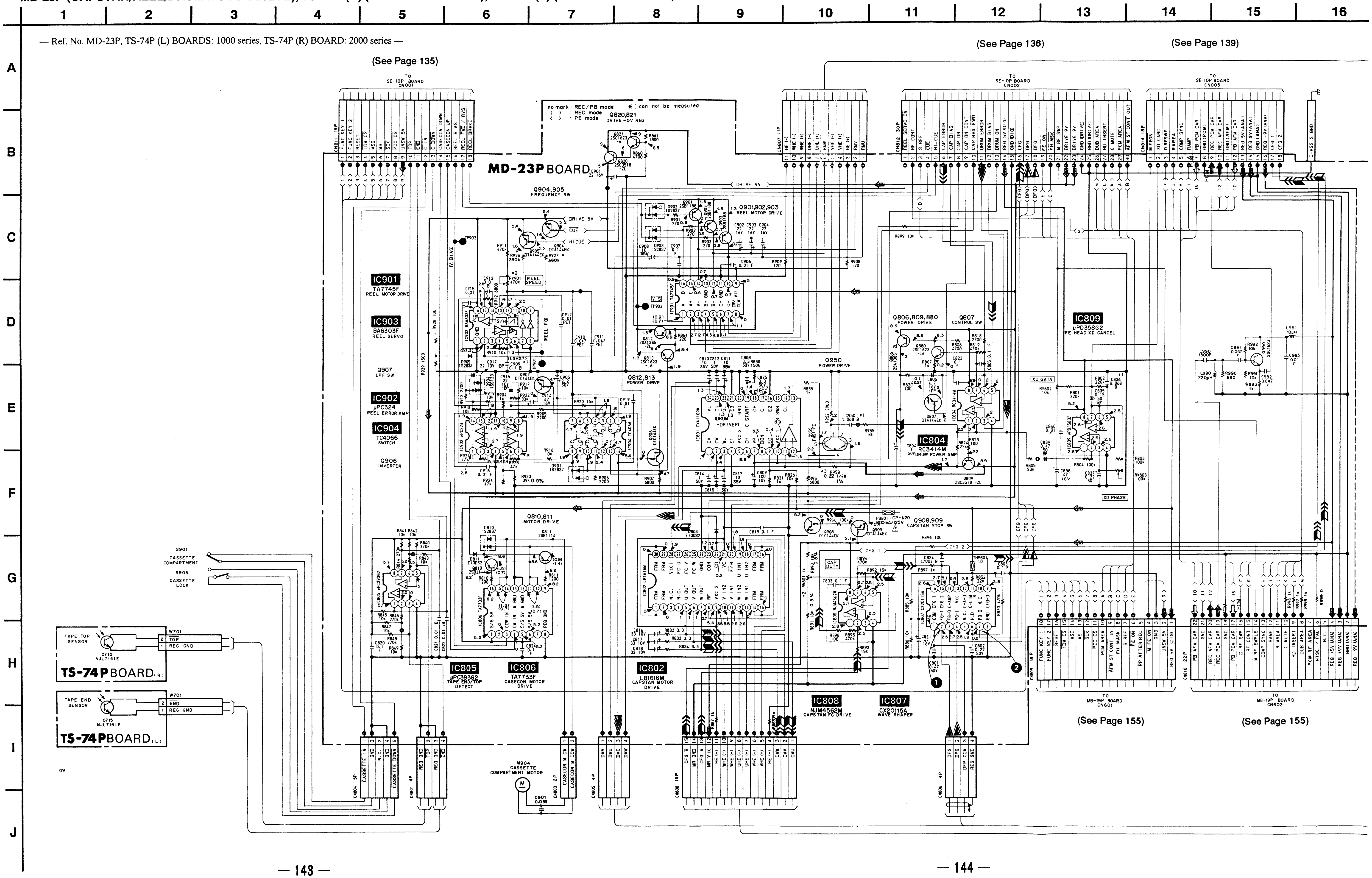

C
D
E
F
G
CN804
CN801
CN803
CN809
Q806
CAP DUTY
RV901
PS801
Q809
D904
CN805
IC806
IC902
Q821
Q820
IC901
Q901
Q906
VS
TP903
V BIAS
D903
IC903
D905
REEL SPEED
TP902
Q902
Q901
D803
CN812
IC904
Q907
Q812
Q903
D902
CN811
TP901
REEL FG
1-630-905-
17

MD-23P BOARD
(COMPONENT
SIDE)

D803	C-1
D901	D-1
D902	F-1
D903	F-1
D904	D-2
D905	G-1
IC806	G-2
IC901	F-2
IC902	D-2
IC903	F-1
IC904	D-1
Q806	D-3
Q809	F-3
Q812	E-1
Q820	G-2
Q821	F-2
Q901	E-1
Q902	F-1
Q903	F-1
Q906	D-1
Q907	E-1
Q908	C-2
Q909	C-2

MD-23P (CAPSTAN/REEL/DRUM MOTOR DRIVE), TS-74P (R) (TAPE TOP SENSOR), TS-74P (L) (TAPE END SENSOR) SCHEMATIC DIAGRAMS

— Ref. No. MD-23P, TS-74P (L) BOARDS: 1000 series, TS-74P (R) BOARD: 2000 series —



1
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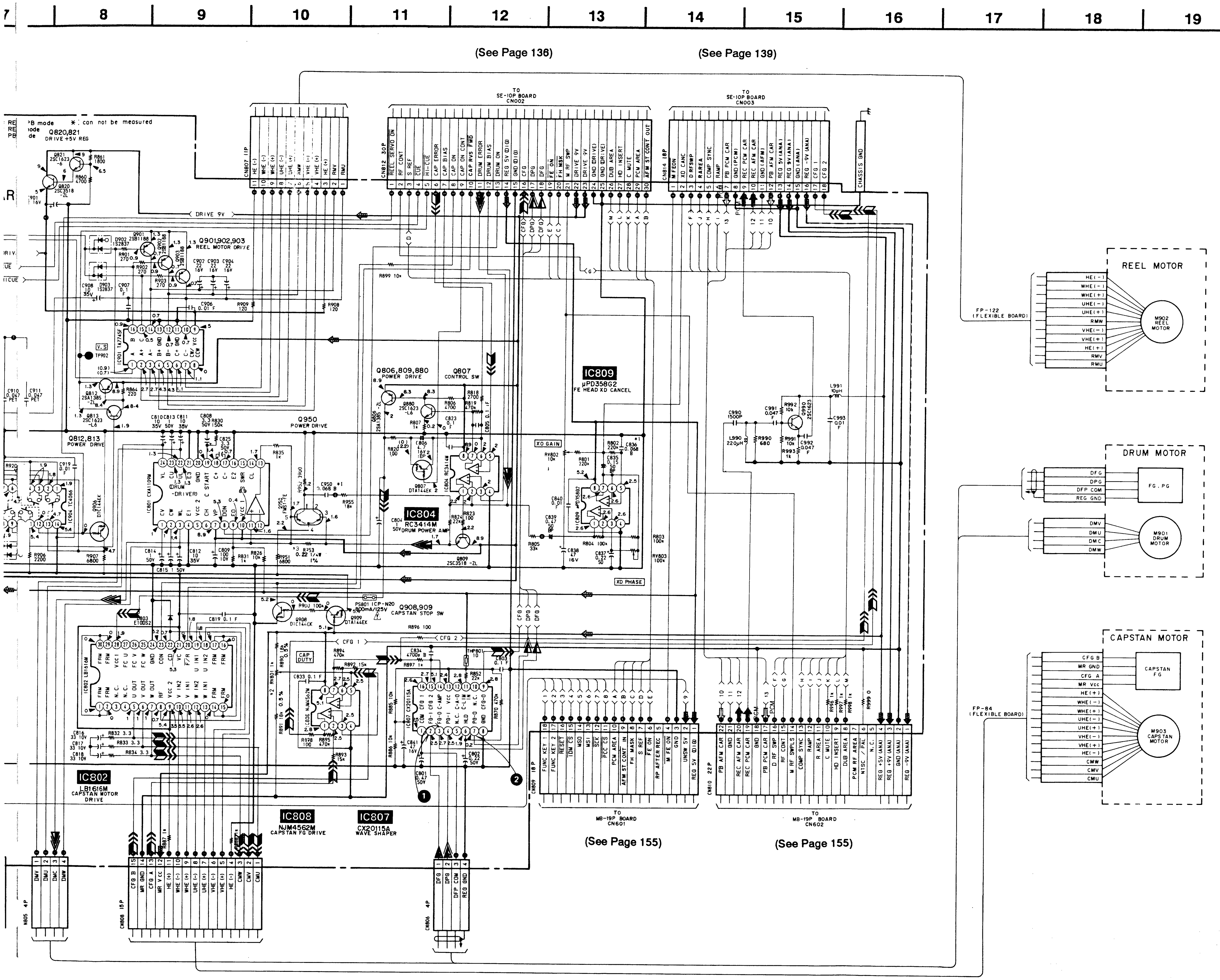
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
(See Page 135)
(See Page 136)
(See Page 139)
TO SE-10P BOARD CN001
TO SE-10P BOARD CN002
TO SE-10P BOARD CN003
no mark : REC/PB mode
( ) : REC mode
⟨ ⟩ : PB mode
✱ : can not be measured
MD-23P BOARD
Q820,821 DRIVE +5V REG
Q904,905 FREQUENCY SW
Q901,902,903 REEL MOTOR DRIVE
IC901 TA7745F REEL MOTOR DRIVE
IC903 BA6303F REEL SERVO
Q907 LPF SW
IC902 μPC324 REEL ERROR AMP
IC904 TC4066 SWITCH
Q906 INVERTER
Q812,813 POWER DRIVE
Q950 POWER DRIVE
Q806,809,880 POWER DRIVE
Q807 CONTROL SW
IC809 μPD358G2 FE HEAD XD CANCEL
IC804 RC3414M DRUM POWER AMP
XD GAIN
XD PHASE
Q810,811 MOTOR DRIVE
Q908,909 CAPSTAN STOP SW
PS801 ICP-N20 800mA/125V
S901 CASSETTE COMPARTMENT
S903 CASSETTE LOCK
TAPE TOP SENSOR
Q715 NJL7141E
TS-74P BOARD (R)
TAPE END SENSOR
Q715 NJL7141E
TS-74P BOARD (L)
IC805 μPC393G2 TAPE END/TOP DETECT
IC806 TA7733F CASECON MOTOR DRIVE
IC802 LB1616M CAPSTAN MOTOR DRIVE
IC808 NJM4562M CAPSTAN FG DRIVE
IC807 CX20115A WAVE SHAPER
M904 CASSETTE COMPARTMENT MOTOR
TO MB-19P BOARD CN601
TO MB-19P BOARD CN602
(See Page 155)
(See Page 155)


7
8
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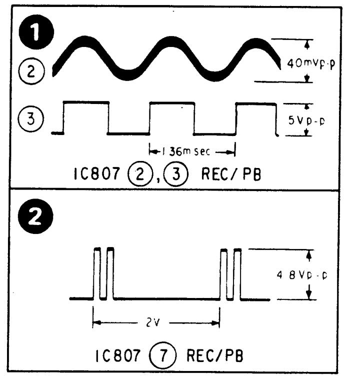
12
13
14
15
16
17
18
19
20
21
22
(See Page 136)
(See Page 139)
TO SE-10P BOARD CN002
TO SE-10P BOARD CN003
PB mode
* : can not be measured
Q820,821 DRIVE +5V REG
DRIVE 9V
Q901,902,903 REEL MOTOR DRIVE
IC901 TA7745F
Q812,813 POWER DRIVE
Q806,809,880 POWER DRIVE
Q807 CONTROL SW
IC809
μPD358G2
FE HEAD XD CANCEL
Q950 POWER DRIVE
IC801 CXA1109M DRUM-DRIVER
IC804
RC3414M
DRUM POWER AMP
XD GAIN
XD PHASE
Q908,909 CAPSTAN STOP SW
PS801 ICP-N20 800mA/125V
IC802
LB1616M
CAPSTAN MOTOR DRIVE
IC808
NJM4562M
CAPSTAN FG DRIVE
IC807
CX20115A
WAVE SHAPER
CAP DUTY
CN807 11P
CN812 30P
CN814 18P
CN809 18P
CN810 22P
CN805 4P
CN808 15P
CN806 4P
CHASSIS GND
REEL MOTOR
M902 REEL MOTOR
FP-122 (FLEXIBLE BOARD)
DRUM MOTOR
FG.PG
M901 DRUM MOTOR
CAPSTAN MOTOR
CAPSTAN FG
M903 CAPSTAN MOTOR
FP-84 (FLEXIBLE BOARD)
TO MB-19P BOARD CN601
TO MB-19P BOARD CN602
(See Page 155)
(See Page 155)

MD-23P BOARD


❶
②
40mVp-p
③
5Vp-p
1.36m sec
IC807 ②,③ REC/PB
❷
4.8Vp-p
2V
IC807 ⑦ REC/PB

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▻	
Drum phase servo		▻▻	
Drum servo (speed and phase)		▻▻▻	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		▻››	
Ref. signal			

(DIODE)

D320	8-719-800-76	DIODE	1SS226
D321	8-719-800-76	DIODE	1SS226

(IC)

IC301	8-759-908-81	IC	MB3763PF
IC302	8-759-908-81	IC	MB3763PF

(TRANSISTOR)

Q301	8-729-805-25	TRANSISTOR	2SB1121-S
Q302	8-729-216-22	TRANSISTOR	2SA1162-G
Q303	8-729-216-22	TRANSISTOR	2SA1162-G
Q304	8-729-216-22	TRANSISTOR	2SA1162-G
Q305	8-729-901-01	TRANSISTOR	DTC144EK
Q306	8-729-901-01	TRANSISTOR	DTC144EK
Q307	8-729-901-01	TRANSISTOR	DTC144EK

RS-31P (REEL SENSOR/MOTOR DRIVE), LD-1P (SENSOR LED), MS-4P (MODE SWITCH), LS-9P (LOADING SWITCH) PRINTED WIRING BOARDS

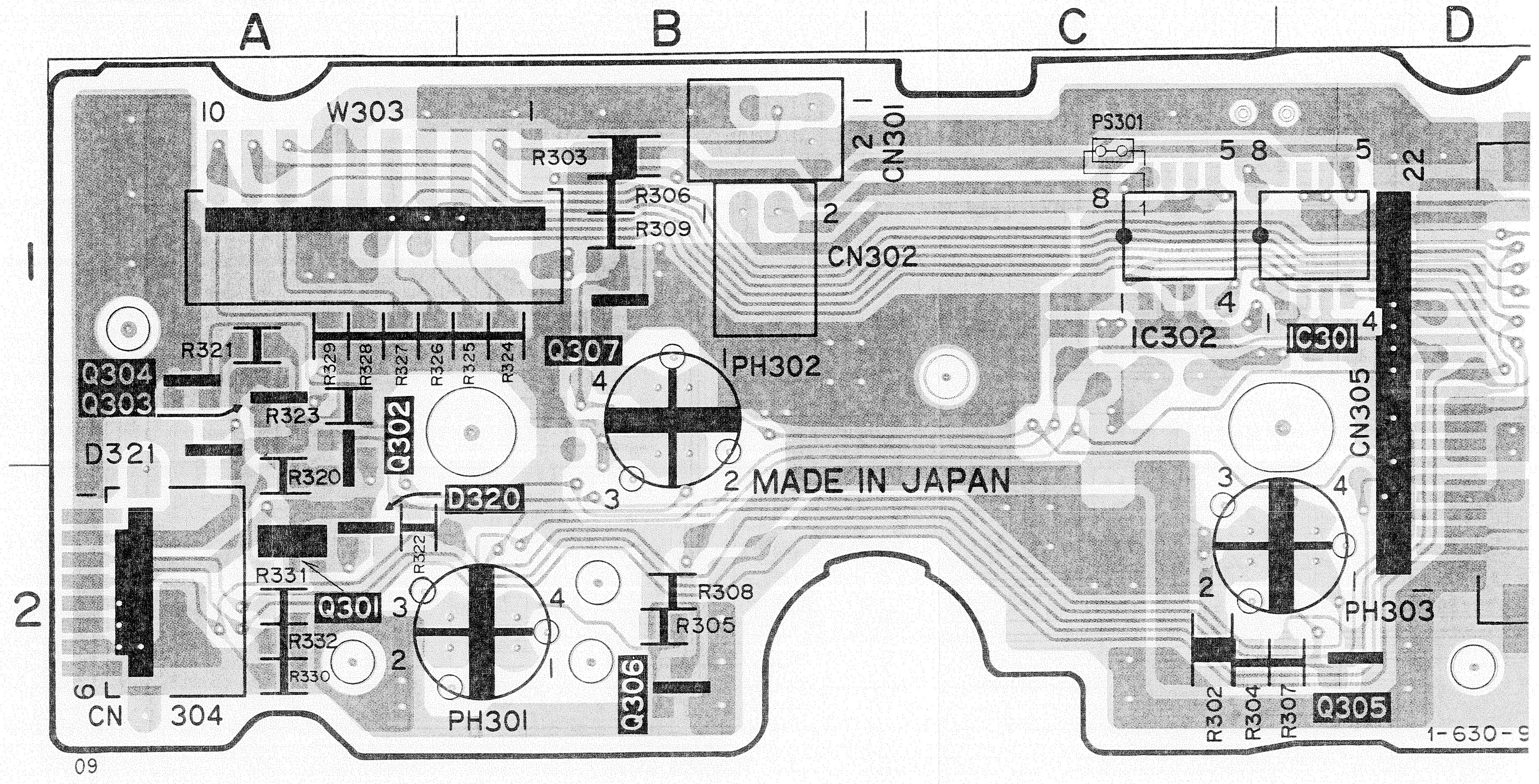
— Ref. No. RS-31P, LD-1P BOARDS: 6000 series, MS-4P BOARD: 13000 series —

- MS-4P, LS-9P boards are replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

RS-31P BOARD (COMPONENT SIDE)

D320	B-2
D321	A-1
IC301	D-1
IC302	C-1
Q301	A-2
Q302	A-1
Q303	A-1
Q304	A-1
Q305	D-2
Q306	B-2
Q307	B-1

RS-31P BOARD (COMPONENT SIDE)


A
B
C
D
1
2
10
W303
1
R303
R306
R309
CN301
2
CN302
PS301
5 8
5
8
22
4
IC302
IC301
CN305
Q304
Q303
R321
R329
R328
R327
R326
R325
R324
Q307
PH302
R323
Q302
D321
R320
D320
3
MADE IN JAPAN
PH303
R331
Q301
R322
R308
R305
R332
R330
Q306
PH301
CN 304
9 L
R302
R304
R307
Q305
1-630-9
09

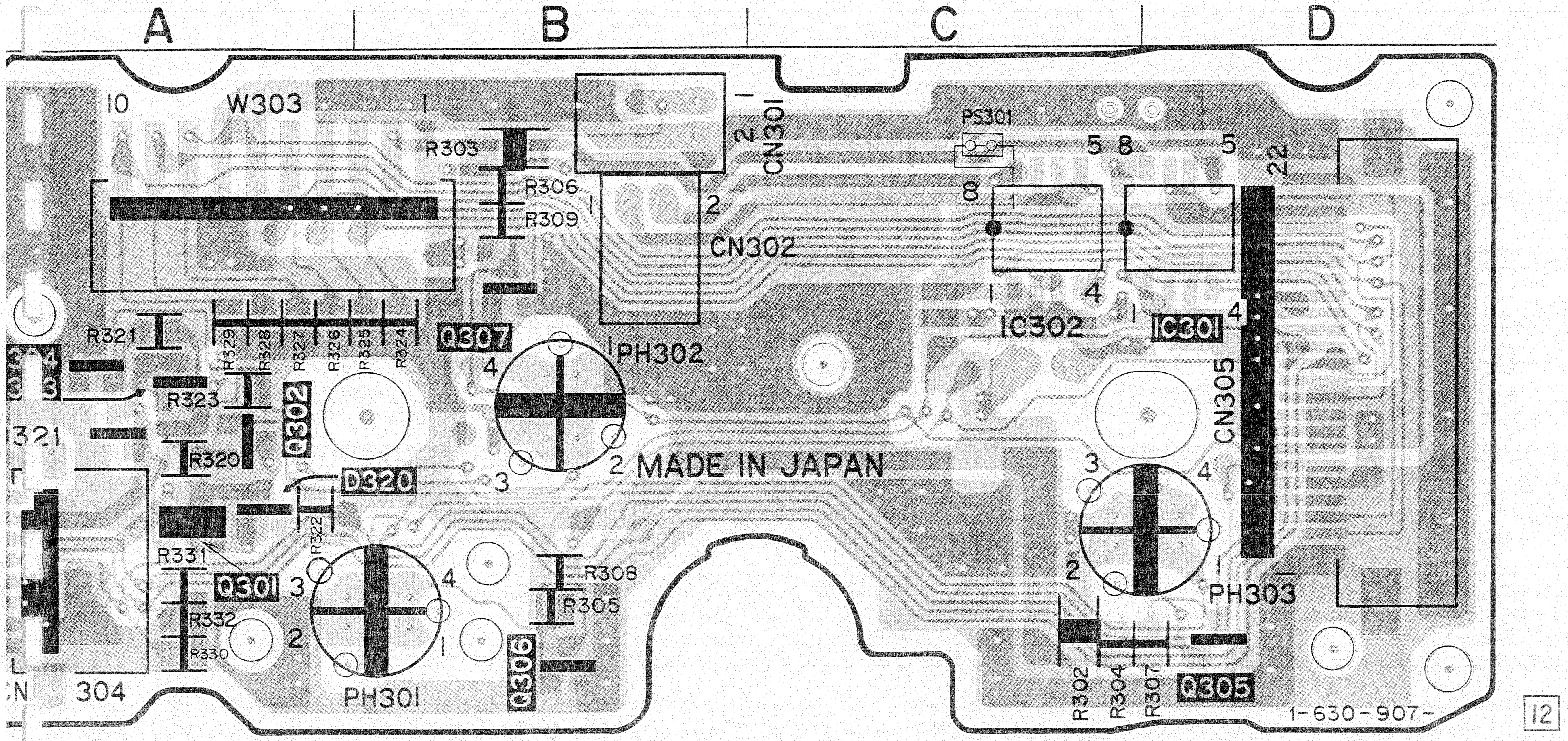
)P DRIVE), LD-1P (SENSOR LED), MS-4P (MODE SWITCH), LS-9P (LOADING SWITCH) PRINTED WIRING BOARDS

0 s es, MS-4P BOARD: 13000 series —

as blocks, so that there

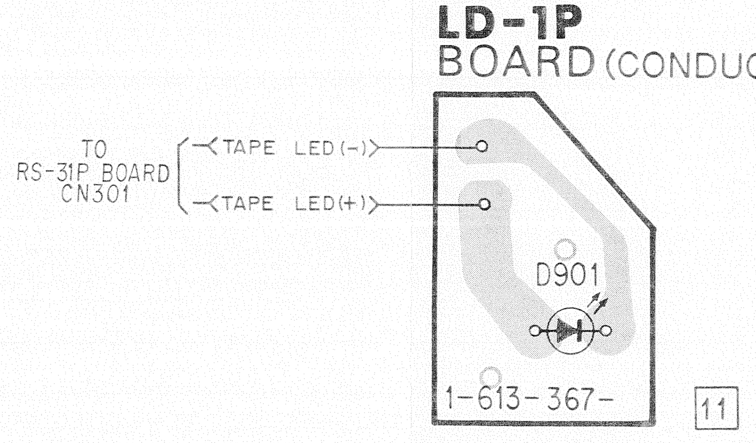
te

-31P BOARD (COMPONENT SIDE)



A
B
C
D
10
W303
1
R303
R306
R309
CN301
2
1
CN302
2
PS301
5 8
5
22
8
1
4
1
IC302
IC301
4
R321
R329
R328
R327
R326
R325
R324
Q307
PH302
4
R323
Q302
CN305
R320
D320
3
2 MADE IN JAPAN
3
4
R331
Q301
3
4
R322
R308
R305
2
PH303
1
R332
R330
2
1
PH301
Q306
R302
R304
R307
Q305
304
1-630-907-
12

LD-1P BOARD (CONDUCTOR SIDE)



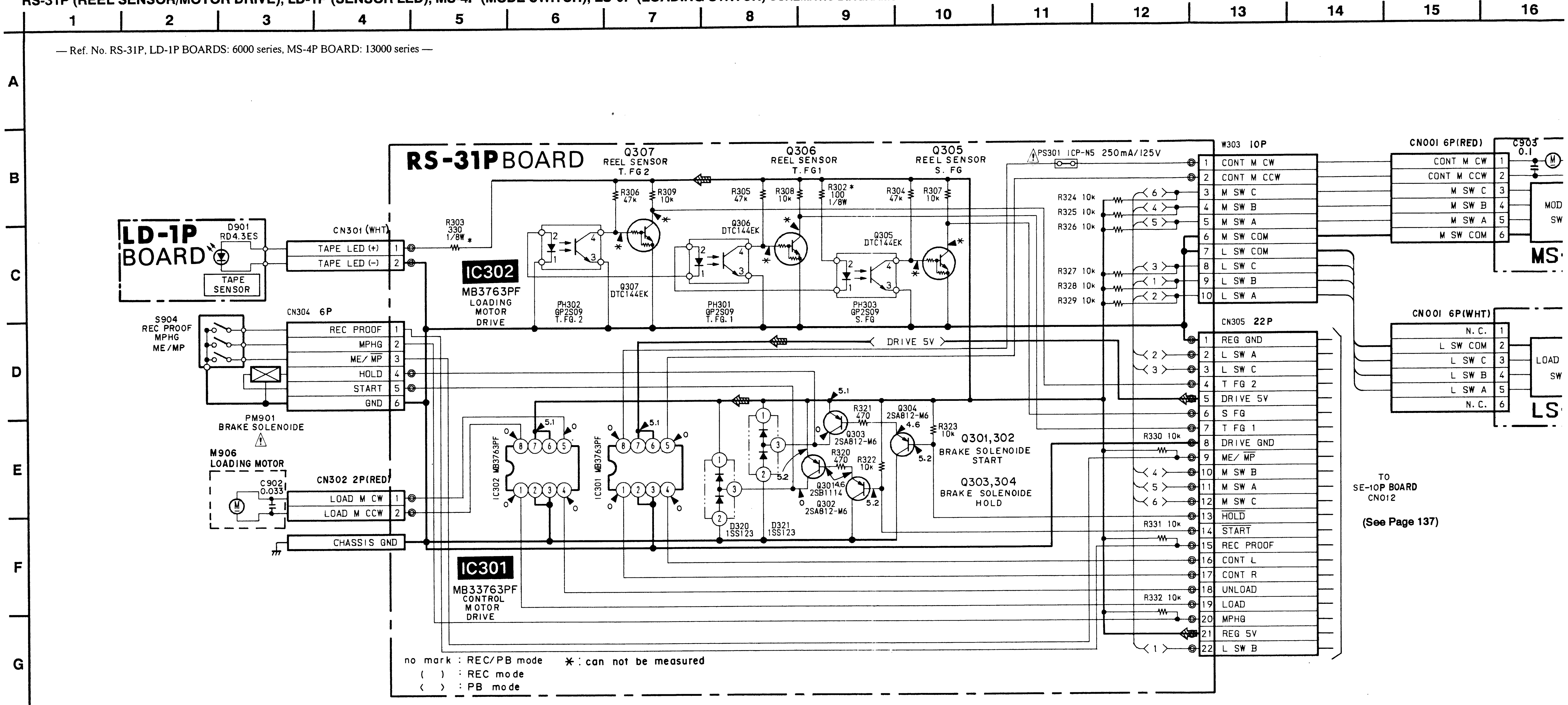
TO RS-31P BOARD CN301
TAPE LED(−)
TAPE LED(+)
D901
1-613-367-
11

(DIODE)

D901 8-719-928-54 LED GL-450S

RS-31P (REEL SENSOR/MOTOR DRIVE), LD-1P (SENSOR LED), MS-4P (MODE SWITCH), LS-9P (LOADING SWITCH) SCHEMATIC DIAGRAMS

— Ref. No. RS-31P, LD-1P BOARDS: 6000 series, MS-4P BOARD: 13000 series —


1
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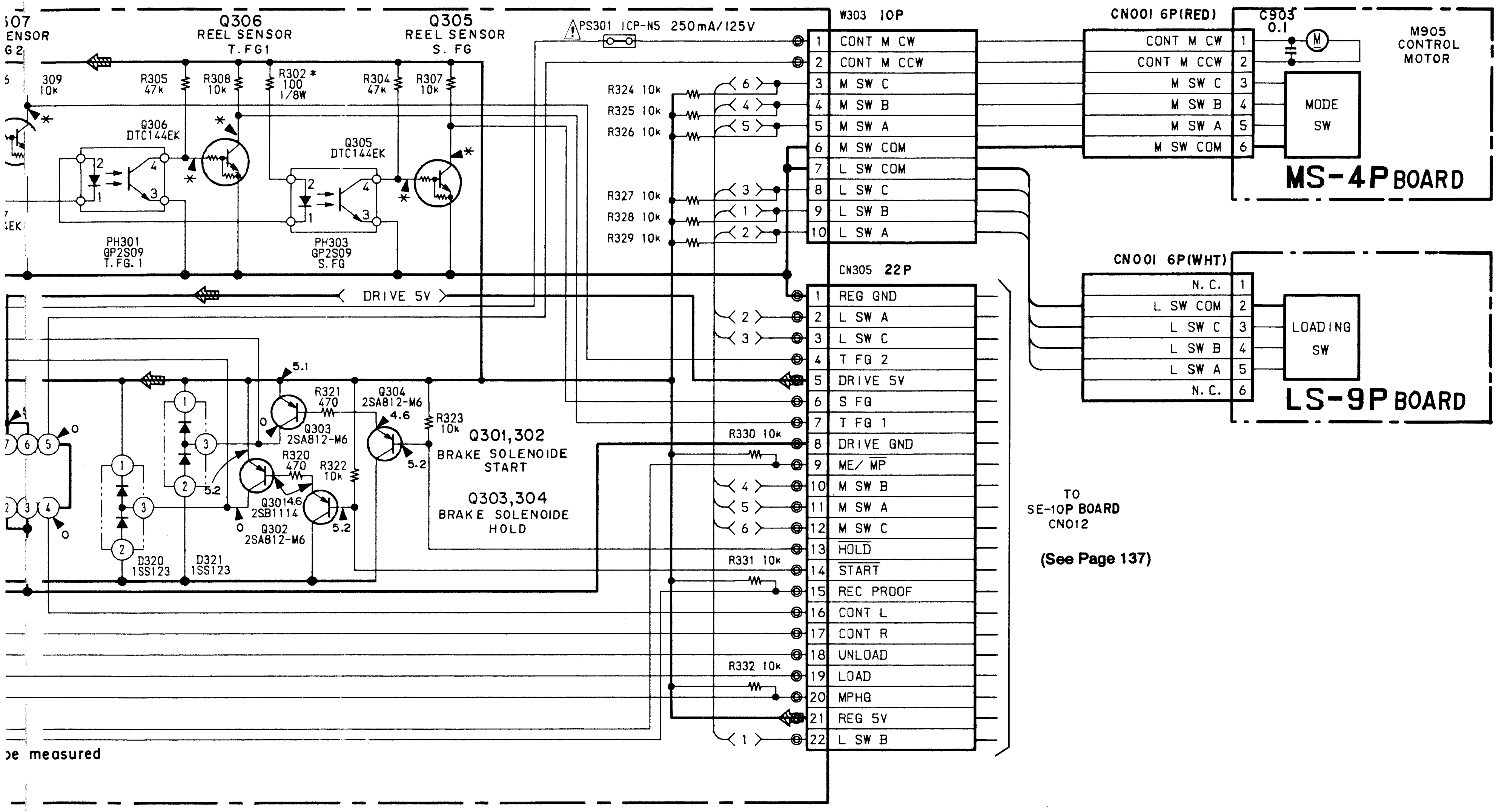
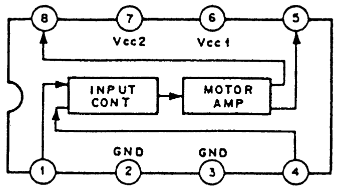
10
11
12
13
14
15
16
A
B
C
D
E
F
G
RS-31P BOARD
LD-1P BOARD
D901 RD4.3ES
TAPE SENSOR
CN301 (WHT)
TAPE LED (+) 1
TAPE LED (−) 2
S904 REC PROOF MPHG ME/MP
CN304 6P
REC PROOF 1
MPHG 2
ME/MP 3
HOLD 4
START 5
GND 6
PM901 BRAKE SOLENOIDE
M906 LOADING MOTOR
C902 0.033
CN302 2P(RED)
LOAD M CW 1
LOAD M CCW 2
CHASSIS GND
R303 330 1/8W *
IC302
MB3763PF LOADING MOTOR DRIVE
IC301
MB33763PF CONTROL MOTOR DRIVE
Q307 REEL SENSOR T.FG2
Q306 REEL SENSOR T.FG1
Q305 REEL SENSOR S.FG
R306 47k
R309 10k
R305 47k
R308 10k
R302 * 100 1/8W
R304 47k
R307 10k
Q307 DTC144EK
Q306 DTC144EK
Q305 DTC144EK
PH302 GP2S09 T.FG.2
PH301 GP2S09 T.FG.1
PH303 GP2S09 S.FG
DRIVE 5V
IC302 MB3763PF
IC301 MB3763PF
5.1
R321 470
Q304 2SA812-M6
4.6
R323 10k
Q303 2SA812-M6
R320 470
R322 10k
Q301 2SB1114
Q302 2SA812-M6
5.2
D320 1SS123
D321 1SS123
Q301,302 BRAKE SOLENOIDE START
Q303,304 BRAKE SOLENOIDE HOLD
PS301 ICP-N5 250mA/125V
R324 10k
R325 10k
R326 10k
R327 10k
R328 10k
R329 10k
R330 10k
R331 10k
R332 10k
W303 10P
1 CONT M CW
2 CONT M CCW
3 M SW C
4 M SW B
5 M SW A
6 M SW COM
7 L SW COM
8 L SW C
9 L SW B
10 L SW A
CN305 22P
1 REG GND
2 L SW A
3 L SW C
4 T FG 2
5 DRIVE 5V
6 S FG
7 T FG 1
8 DRIVE GND
9 ME/MP
10 M SW B
11 M SW A
12 M SW C
13 HOLD
14 START
15 REC PROOF
16 CONT L
17 CONT R
18 UNLOAD
19 LOAD
20 MPHG
21 REG 5V
22 L SW B
CN001 6P(RED)
CONT M CW 1
CONT M CCW 2
M SW C 3
M SW B 4
M SW A 5
M SW COM 6
C903 0.1
MOD SW
MS
CN001 6P(WHT)
N.C. 1
L SW COM 2
L SW C 3
L SW B 4
L SW A 5
N.C. 6
LOAD SW
LS
TO SE-10P BOARD CN012
(See Page 137)

no mark : REC/PB mode　　✱ : can not be measured
( ) : REC mode
〈 〉 : PB mode


Q306
REEL SENSOR
T.FG1
Q305
REEL SENSOR
S. FG
ENSOR
G2
309
10k
R305
47k
R308
10k
R302 *
100
1/8W
R304
47k
R307
10k
Q306
DTC144EK
Q305
DTC144EK
PH301
GP2S09
T.FG.1
PH303
GP2S09
S.FG
DRIVE 5V
PS301 ICP-N5 250mA/125V
R324 10k
R325 10k
R326 10k
R327 10k
R328 10k
R329 10k
W303 10P
1 CONT M CW
2 CONT M CCW
3 M SW C
4 M SW B
5 M SW A
6 M SW COM
7 L SW COM
8 L SW C
9 L SW B
10 L SW A
CN305 22P
1 REG GND
2 L SW A
3 L SW C
4 T FG 2
5 DRIVE 5V
6 S FG
7 T FG 1
8 DRIVE GND
9 ME/ $\overline{\text{MP}}$
10 M SW B
11 M SW A
12 M SW C
13 $\overline{\text{HOLD}}$
14 $\overline{\text{START}}$
15 REC PROOF
16 CONT L
17 CONT R
18 UNLOAD
19 LOAD
20 MPHG
21 REG 5V
22 L SW B
R330 10k
R331 10k
R332 10k
5.1
R321
470
Q304
2SA812-M6
4.6
R323
10k
Q303
2SA812-M6
R320
470
R322
10k
5.2
Q301
2SB1114
Q302
2SA812-M6
D320
1SS123
D321
1SS123
Q301,302
BRAKE SOLENOIDE
START
Q303,304
BRAKE SOLENOIDE
HOLD
be measured
CN001 6P(RED)
1 CONT M CW
2 CONT M CCW
3 M SW C
4 M SW B
5 M SW A
6 M SW COM
C903
0.1
M
M905
CONTROL
MOTOR
MODE
SW
MS-4P BOARD
CN001 6P(WHT)
1 N.C.
2 L SW COM
3 L SW C
4 L SW B
5 L SW A
6 N.C.
LOADING
SW
LS-9P BOARD
TO
SE-10P BOARD
CN012
(See Page 137)

IC301, IC302 (MB3763PF)


8
7
6
5
Vcc2
Vcc1
INPUT
CONT
MOTOR
AMP
GND
GND
1
2
3
4

MB-19P (VTR FUNCTION SWITCH, AFM AUDIO PROCESS) PRINTED WIRING BOARD

— Ref. No. MB-19P BOARD: 7000 series —

〈 DIODE 〉

D601	8-719-104-34	DIODE	1S2836
D602	8-719-104-34	DIODE	1S2836
D603	8-719-104-34	DIODE	1S2836
D604	8-719-400-18	DIODE	MA152WK
D641	8-719-800-76	DIODE	1SS226
D642	8-719-800-76	DIODE	1SS226

〈 IC 〉

IC601	8-759-066-42	IC	uPD75106G-595-1B
IC603	8-759-300-71	IC	HD14053BFP
IC651	8-759-603-27	IC	M5201FP
IC661	8-759-603-27	IC	M5201FP
IC671	8-741-150-50	IC	SBX1505-01

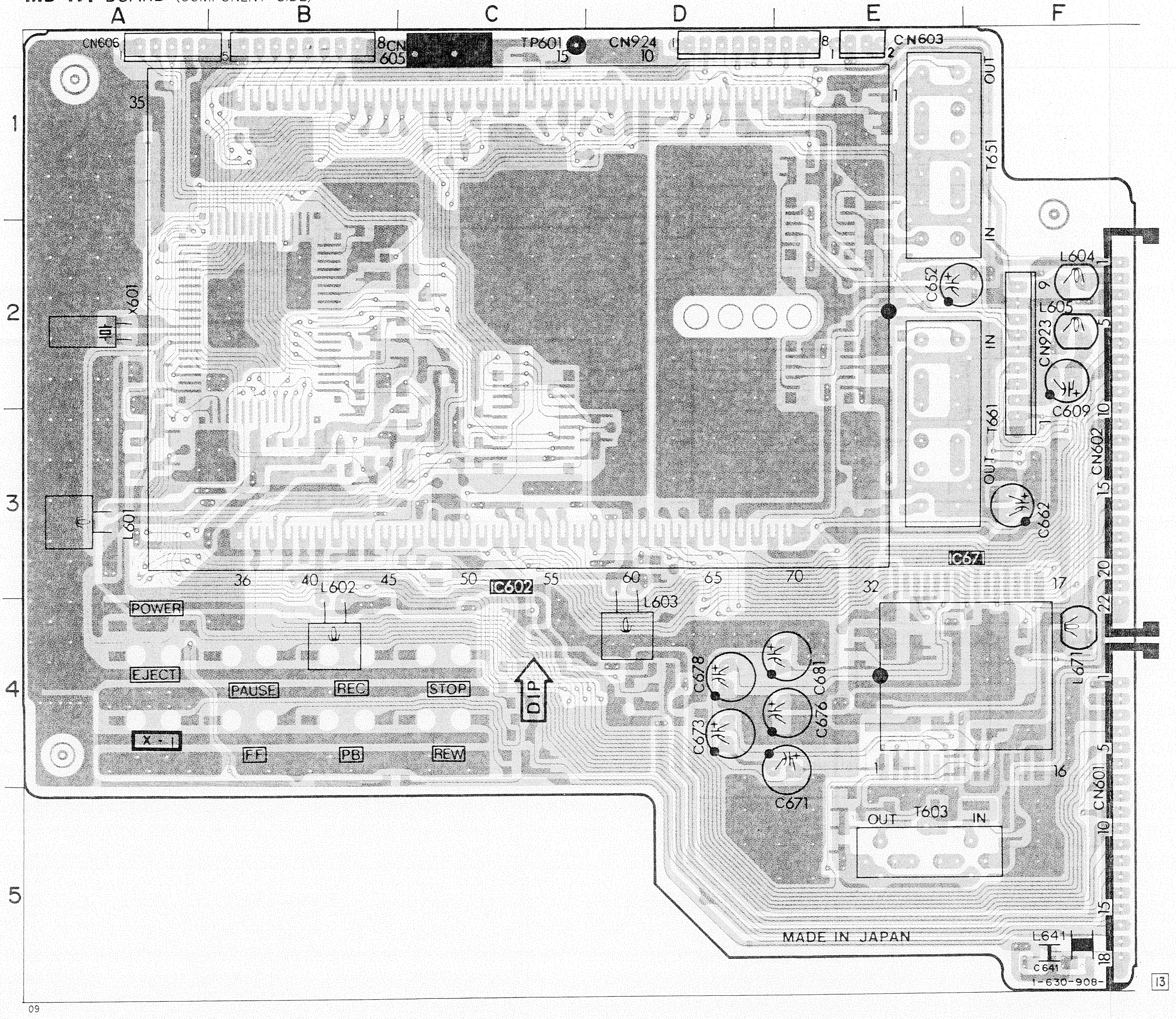
〈 TRANSISTOR 〉

Q601	8-729-901-06	TRANSISTOR	DTA144EK
Q602	8-729-901-01	TRANSISTOR	DTC144EK
Q603	8-729-901-01	TRANSISTOR	DTC144EK
Q604	8-729-901-01	TRANSISTOR	DTC144EK
Q605	8-729-901-06	TRANSISTOR	DTA144EK
Q606	8-729-901-06	TRANSISTOR	DTA144EK
Q607	8-729-901-01	TRANSISTOR	DTC144EK
Q608	8-729-901-01	TRANSISTOR	DTC144EK
Q609	8-729-901-06	TRANSISTOR	DTA144EK
Q671	8-729-100-66	TRANSISTOR	2SC1623-L6

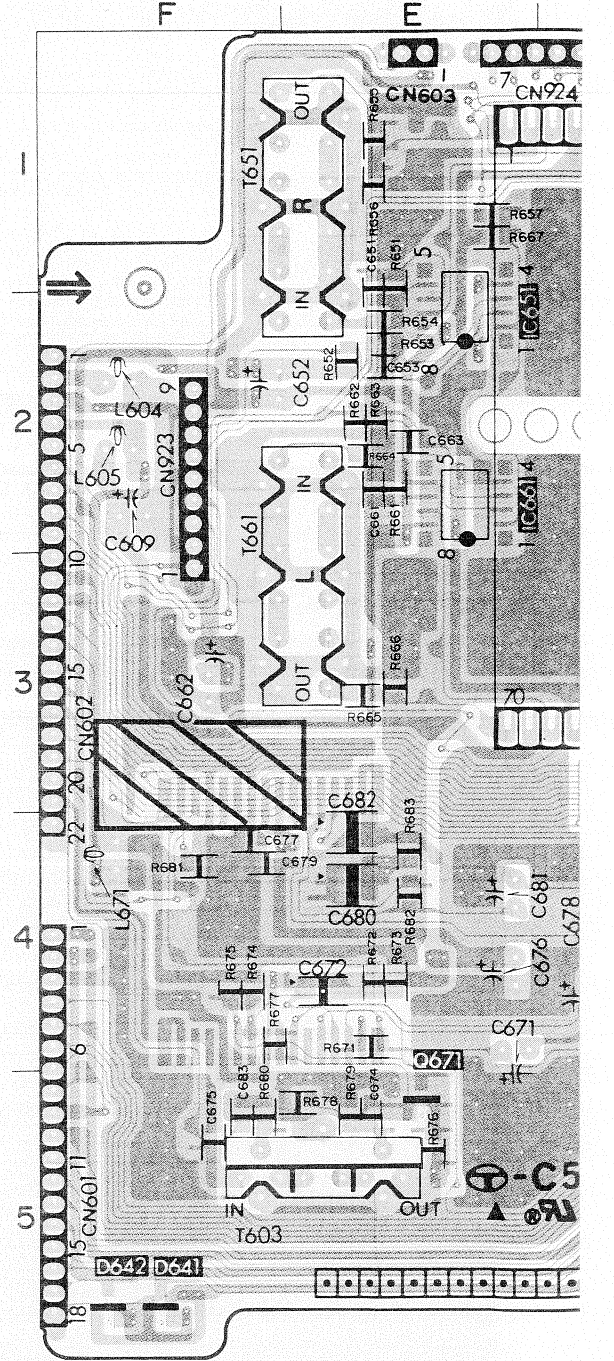
MB-19P BOARD (COMPONENT SIDE)

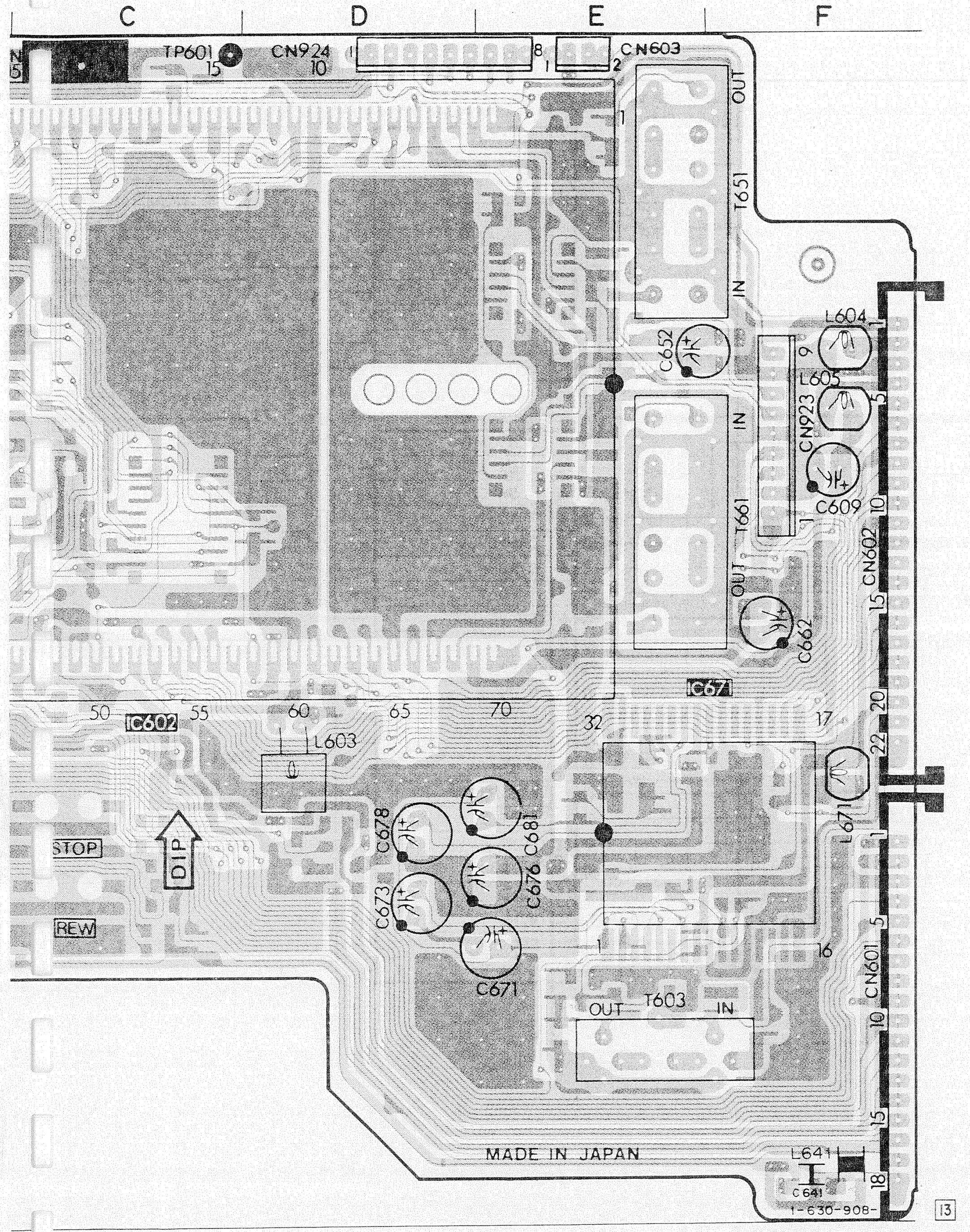
IC602	C-3
IC671	F-4

MB-19P BOARD (COMPONENT SIDE)

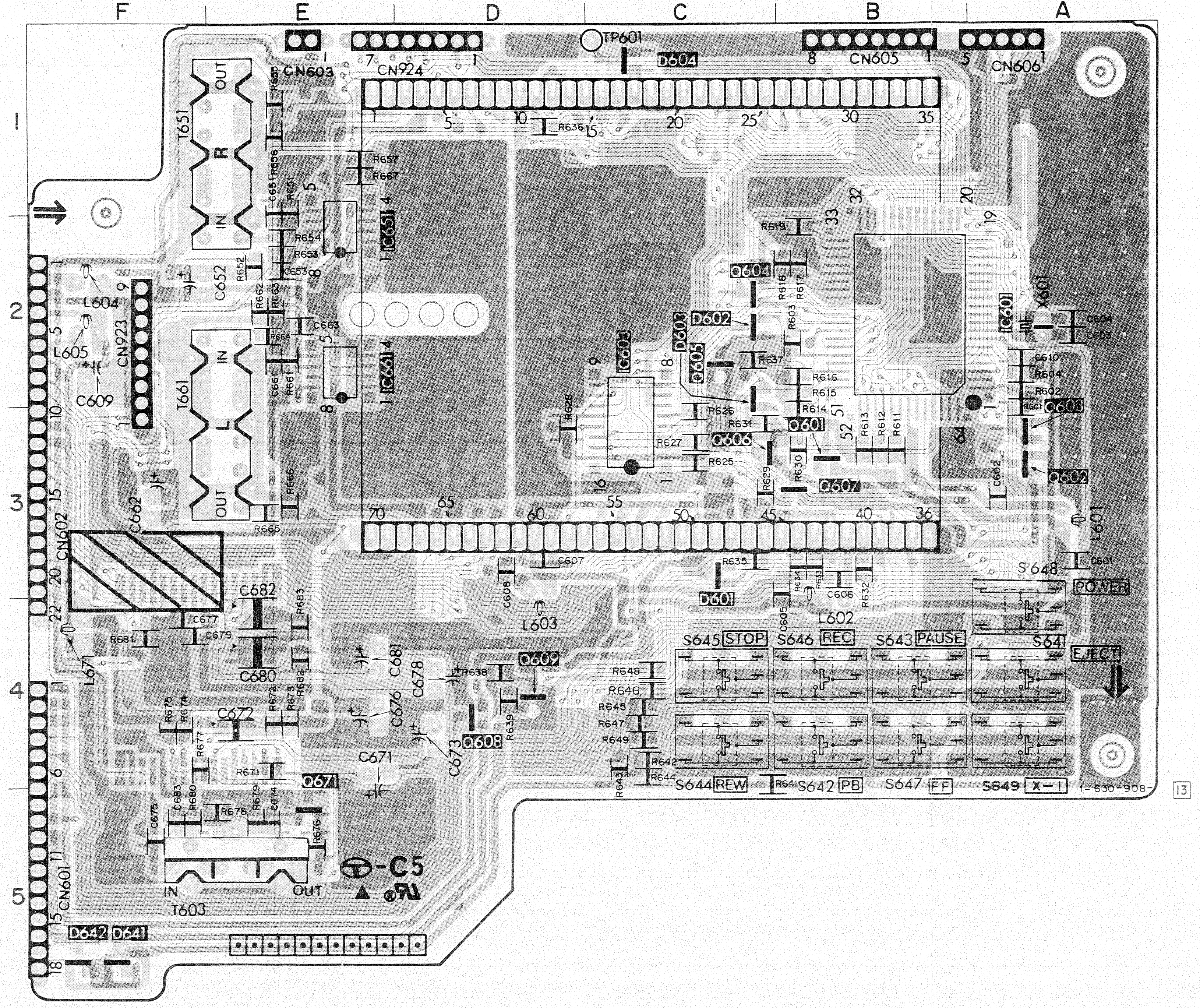

A
B
C
D
E
F
1
2
3
4
5
CN606
CN605
TP601
CN924
CN603
T651
IN
OUT
X601
L601
L602
L603
L604
L605
L641
C641
C652
C609
C662
C671
C673
C676
C678
C681
CN923
CN602
CN601
T661
T603
IC602
IC671
L671
POWER
EJECT
PAUSE
REC
STOP
FF
PB
REW
X-1
DIP
MADE IN JAPAN
1-630-908-
13
09

MB-19P BOARD (CONDUCTOR SIDE)


F
E
1
2
3
4
5
CN603
CN924
T651
T661
T603
IC651
IC661
R
L
IN
OUT
L604
L605
C609
C652
C662
C663
C671
C672
C676
C677
C678
C679
C680
C681
C682
C683
CN923
CN602
CN601
L671
Q671
D642
D641
R651
R652
R653
R654
R657
R662
R663
R664
R665
R666
R667
R671
R672
R673
R674
R675
R676
R677
R678
R679
R680
R681
R682
R683
70


C
D
E
F
TP601
CN924
CN603
T651
T661
C652
L604
L605
CN923
C609
C662
CN602
IC602
IC671
L603
C678
C681
C673
C676
C671
L671
STOP
REW
DIP
T603
OUT
IN
CN601
MADE IN JAPAN
L641
C641
1-630-908-
13

MB-19P BOARD (CONDUCTOR SIDE)


F
E
D
C
B
A
1
2
3
4
5
CN603
CN924
TP601
D604
CN605
CN606
T651
IC651
T661
IC661
C652
L604
L605
CN923
C609
CN602
C662
IC603
IC601
D602
D603
Q604
Q605
Q606
Q601
Q607
Q602
C603
X601
L601
D601
L603
C682
C680
C677
C679
C681
C678
C676
C673
C671
C672
Q609
Q608
Q671
L671
CN601
T603
IN
OUT
D642
D641
S648
POWER
S645 STOP
S646 REC
S643 PAUSE
S641 EJECT
S644 REW
S642 PB
S647 FF
S649 X-1
L602
-C5
1-630-908-
13

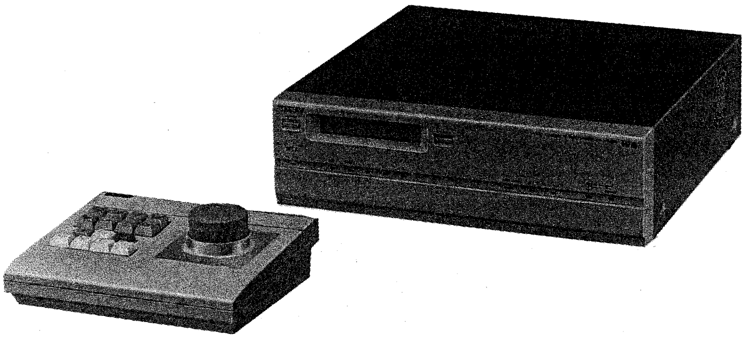
MB-19P BOARD
(CONDUCTOR
SIDE)

D601	C-4
D602	C-2
D603	C-2
D604	C-1
D641	F-5
D642	F-5
IC601	B-2
IC603	C-2
IC651	E-2
IC661	E-2
Q601	B-3
Q602	A-3
Q603	A-3
Q604	C-2
Q605	C-2
Q606	C-3
Q607	B-3
Q608	D-4
Q609	D-4
Q671	E-5

EVO-9650P
RM-9650

SERVICE MANUAL

AEP Model
UK Model



video Hi8

SPECIFICATIONS

Video

Video signal	CCIR standard, PAL colour
Video recording system	Rotary two-head helical scanning
Recording mode	Hi8, standard 8 mm
Playback mode	Automatic detection
Horizontal resolution	400 TV lines (Hi8 mode) 240 TV lines (standard mode)
Signal-to-noise ratio	45 dB (Hi8/standard mode)
Head width	18.5 µm

Audio

Recording system	Rotary 2-head
AFM audio	Monaural
PCM audio	Stereo
Frequency response	30 Hz – 15 kHz (AFM, SP mode) 20 Hz – 15 kHz (PCM)
Dynamic range	Better than 60 dB (AFM) Better than 85 dB (PCM)

Inputs/outputs

Video input	LINE IN: BNC connector (1) 1 Vp-p, 75 ohms unbalanced, sync negative S VIDEO IN: 4-pin mini DIN connector (1) Luminance: 1 Vp-p, 75 ohms unbalanced, sync negative Chrominance: 300 mVp-p, 75 ohms unbalanced
Video output	LINE OUT: BNC connector (1) MONITOR OUT: BNC connector (1) 1 Vp-p, 75 ohms unbalanced, sync negative S VIDEO OUT: 4-pin mini DIN connector (1) Luminance: 1 Vp-p, 75 ohms unbalanced, sync negative Chrominance: 300 mVp-p, 75 ohms unbalanced
Audio input	LINE IN: phono jack (2) Input level –7.5 dBs (0 dBs=0.775 Vrms) Input impedance more than 47 kilohms
Audio output	LINE OUT: phono jacks (2) MONITOR OUT: phono jacks (2) –7.5 dBs (0 dBs=0.775 Vrms) Load impedance 47 kilohms Output impedance less than 2.2 kilohms
Microphone input	Minijack (1), monaural –65 dBs, 4.3 kilohms
Headphone output	Stereo minijack (1), stereo

Control/interface connectors

CONTROLLER	8-pin mini DIN connector (1)
RS-232C	25-pin D sub connector (1) Sony Institutional RS-232C interface
GPI	BNC connector (1)

General

Power requirements	220 – 240 V AC, 50/60 Hz
Power consumption	35 W
Operating temperature	5 – 40°C (41 – 104°F)
Storage temperature	–20 – +60°C (4 – 140°F)
Dimensions	355 × 116 × 404 mm (w/h/d) (14 × 4⁵/₈ × 16 inches) incl. projecting parts and controls
Weight	Approx. 8.0 kg (17 lb 10 oz)
Video cassette	P5-HMP/HMPX, P5-MP series
Tape speed	SP: 20.051 mm/sec. (recording/playback) LP: 10.058 mm/sec. (playback only)
Recording/playback time	90 minutes with Sony P5-90HMPX (SP mode)
Search speed	–13, –7, –3, –1, –1/3, –1/5, –1/10, –1/30, still, 1/30, 1/10, 1/5, 1/3, 1, 2, 9, 15 times normal speed (with JOG/SHUTTLE)
Digital mode	Slow, 2× zoom, multi-monitor (3×3 matrix display), freeze (frame/field)

Accessories supplied

Wired remote controller RM-9650 (1)
Power cord (1)
Cleaning cassette (1)
Interface Manual for programmers (1)
Quick reference-RS-232C commands (1)

Design and specifications are subject to change without notice.

Hi 8 VIDEO CASSETTE RECORDER

SONY®

MICROFILM

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

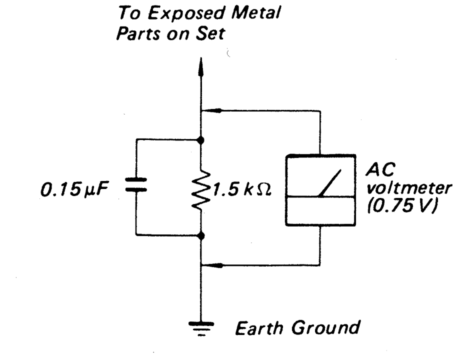


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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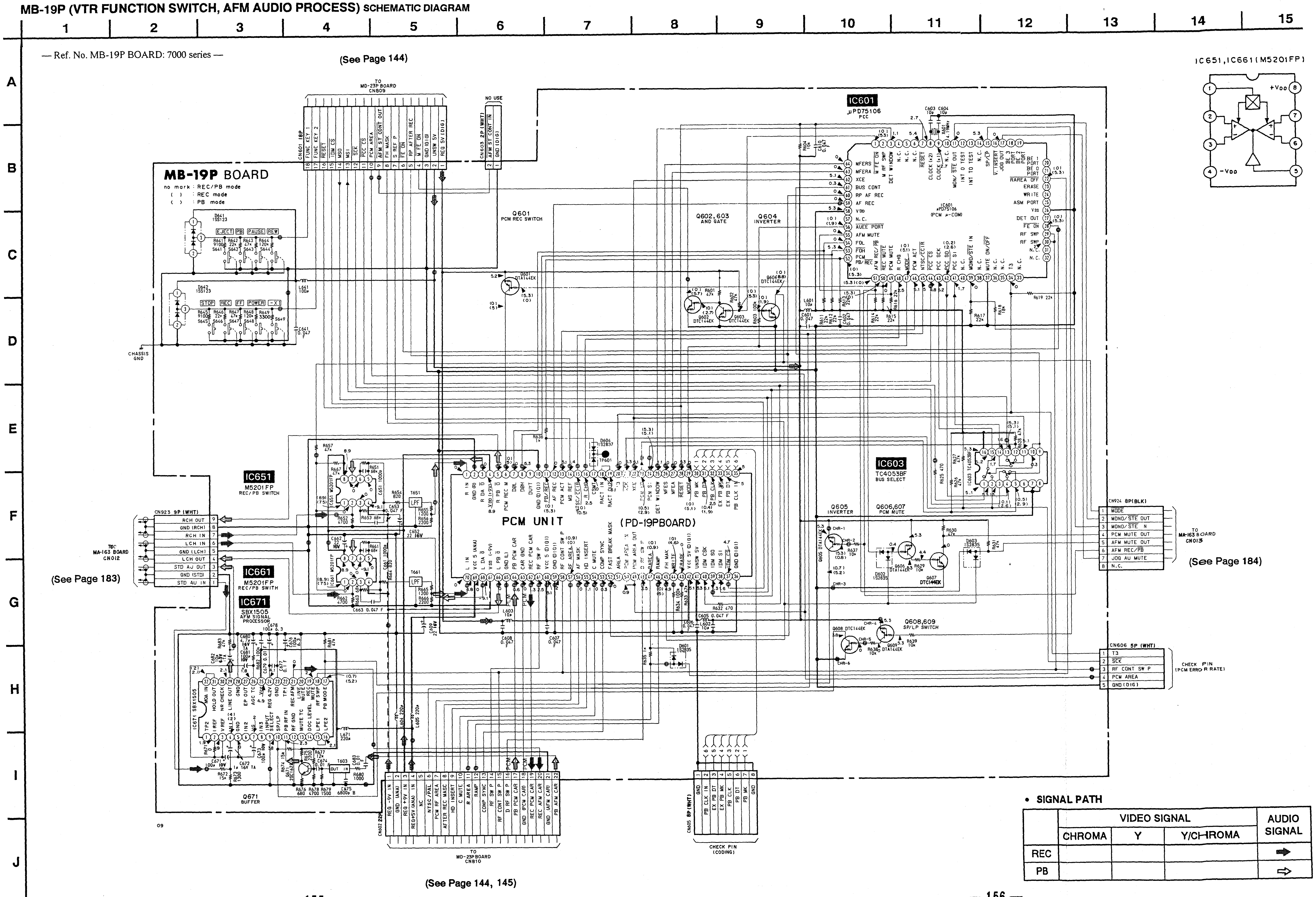
MB-19P (VTR FUNCTION SWITCH, AFM AUDIO PROCESS) SCHEMATIC DIAGRAM

— Ref. No. MB-19P BOARD: 7000 series —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7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
(See Page 144)
TO MD-23P BOARD CN809
CN601 18P
FUNC KEY 1
FUNC KEY 2
RESET
IDM CS
MSO
MSI
SCK
PCC CS
PCM AREA
AFM ST CONT OUT
FH MASK
S REF P
FE ON
RP AFTER REC
M FE ON
GND (DIG)
UNSW SV
REG 5V (DIG)
NO USE
CN603 2P (WHT)
AFM ST CONT IN
GND (DIG)
MB-19P BOARD
no mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
D641 1SS123
EJECT
PB
PAUSE
REW
D642 1SS123
STOP
REC
FF
POWER
-X1
CHASSIS GND
Q601 PCM REC SWITCH
Q601 DTA144EK
IC601
μPD75106
PCC
IC601 μPD75106 (PCM μ-COM)
MFERS
MFERA
XCE
BUS CONT
RP AF REC
AF REC
VDD
N.C.
AUEE PORT
AFM MUTE
FOL
FOH
PCM PB/REC
RESET
CLOCK (X2)
CLOCK (X1)
MON/STE OUT
INT 0 TEST
INT 1 TEST
V. INSERT
SP/LP
JOG OUT
RAREA OFF
ERASE
WRITE
ASM PORT
VSS
DET OUT
FE ON
RF SWP
Q602, 603 AND GATE
Q604 INVERTER
Q602 DTC144EK
Q603 DTC144EK
Q604 DTC144EK
IC651,IC661 (M5201FP)
+VDD
-VDD
IC651
M5201FP
REC/PB SWITCH
IC661
M5201FP
REC/PB SWITH
IC671
SBX1505
AFM SIGNAL PROCESSOR
CN923 9P (WHT)
RCH OUT
GND (RCH)
RCH IN
LCH IN
GND (LCH)
LCH OUT
STD AJ OUT
GND (STD)
STD AU IN
TO MA-163 BOARD CN012
(See Page 183)
PCM UNIT (PD-19PBOARD)
D604 1S2837
IC603
TC4053BF
BUS SELECT
Q605 INVERTER
Q606,607 PCM MUTE
Q606 DTA144EK
Q607 DTC144EK
Q608,609 SP/LP SWITCH
Q608 DTC144EK
Q609 DTA144EK
D601 1S2835
D602 1S2835
D603 1S2835
CN924 8P (BLK)
MODE
MONO/STE OUT
MONO/STE N
PCM MUTE OUT
AFM MUTE OUT
AFM REC/PB
JOG AU MUTE
N.C.
TO MA-163 BOARD CN013
(See Page 184)
CN606 5P (WHT)
T3
SCK
RF CONT SW P
PCM AREA
GND (DIG)
CHECK PIN (PCM ERRO R RATE)
Q671 BUFFER
CN602 22P
REG -9V IN
GND (ANA)
REG +9V IN
REG+5V (ANA) IN
NTSC/PAL
PCM RF AREA
AFTER REC MASK
HD INSERT
C MUTE
R AREA
RAMP
COMP SYNC
RF SW P
D RF SW P
RF CONT SW P
GND (PCM CAR)
REC PCM CAR
REC AFM CAR
GND (AFM CAR)
PB AFM CAR
TO MD-23P BOARD CN810
(See Page 144, 145)
CN605 8P (WHT)
GND
PB CLK IN
EX PB DT
EX PB MK
PB CLK
PB DT
PB MK
CHECK PIN (CODING)
09

- **SIGNAL PATH**

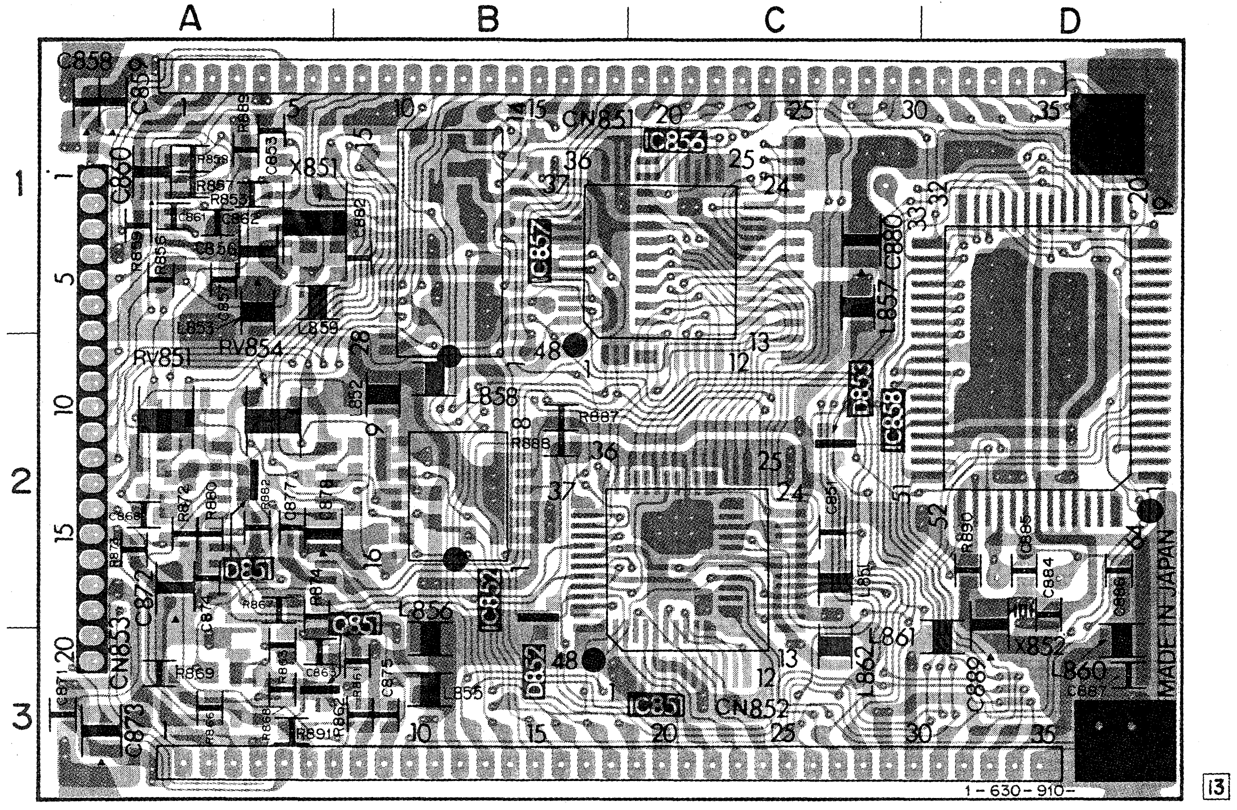
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

PD-19P (PCM AUDIO PROCESS), PA-27P (PCM AUDIO PROCESS) PRINTED WIRING BOARDS

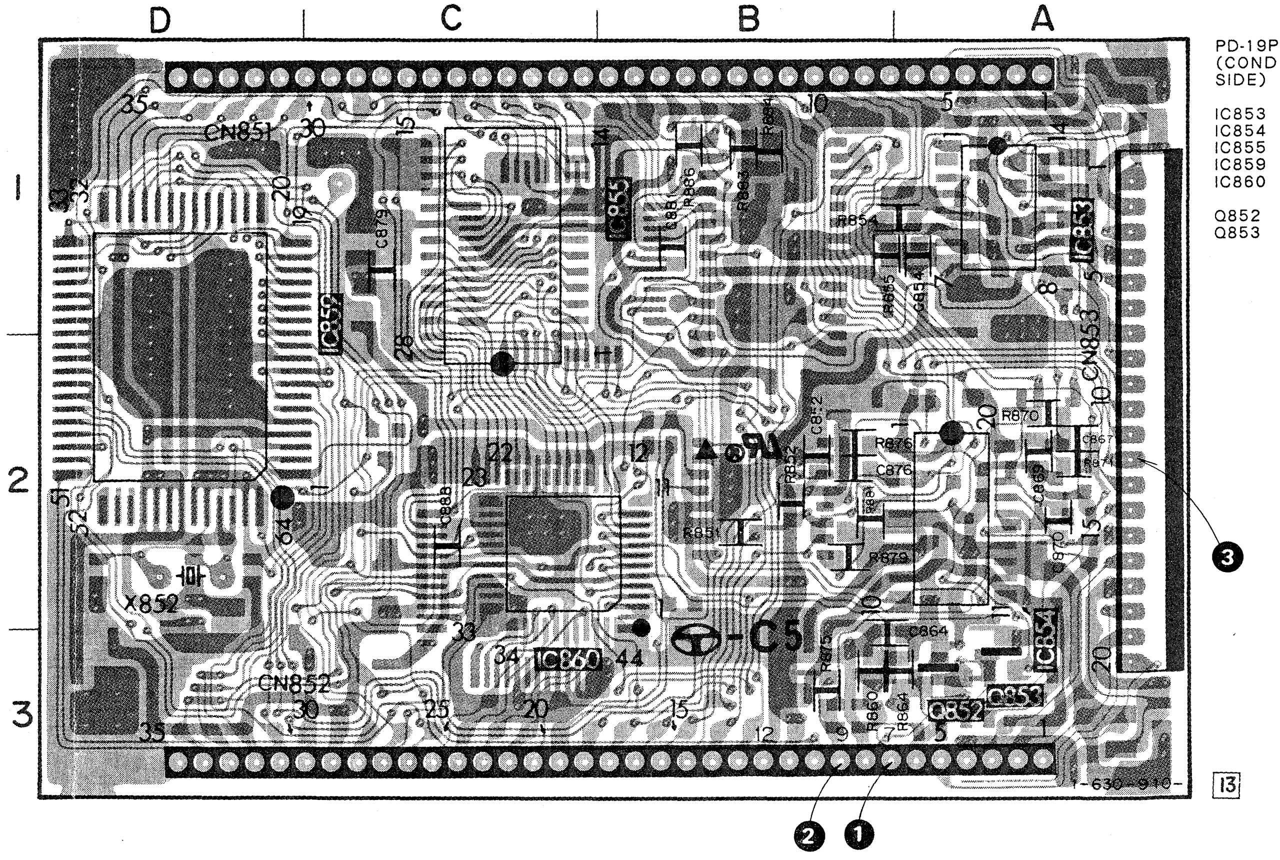
— Ref. No. PD-19P, PA-27P BOARDS: 7000 series —

PD-19P BOARD (COMPONENT SIDE)

PD-19P BOARD (COMPONENT SIDE)	
D851	A-2
D852	B-3
D853	C-2
IC851	C-3
IC852	B-2
IC856	C-1
IC857	B-1
IC858	D-2
Q851	B-3


A
B
C
D
1
2
3
CN851
CN852
CN853
IC856
IC857
IC858
IC851
IC852
D851
D852
D853
Q851
X851
X852
RV851
RV854
MADE IN JAPAN
1-630-910-
13

PD-19P BOARD (CONDUCTOR SIDE)


D
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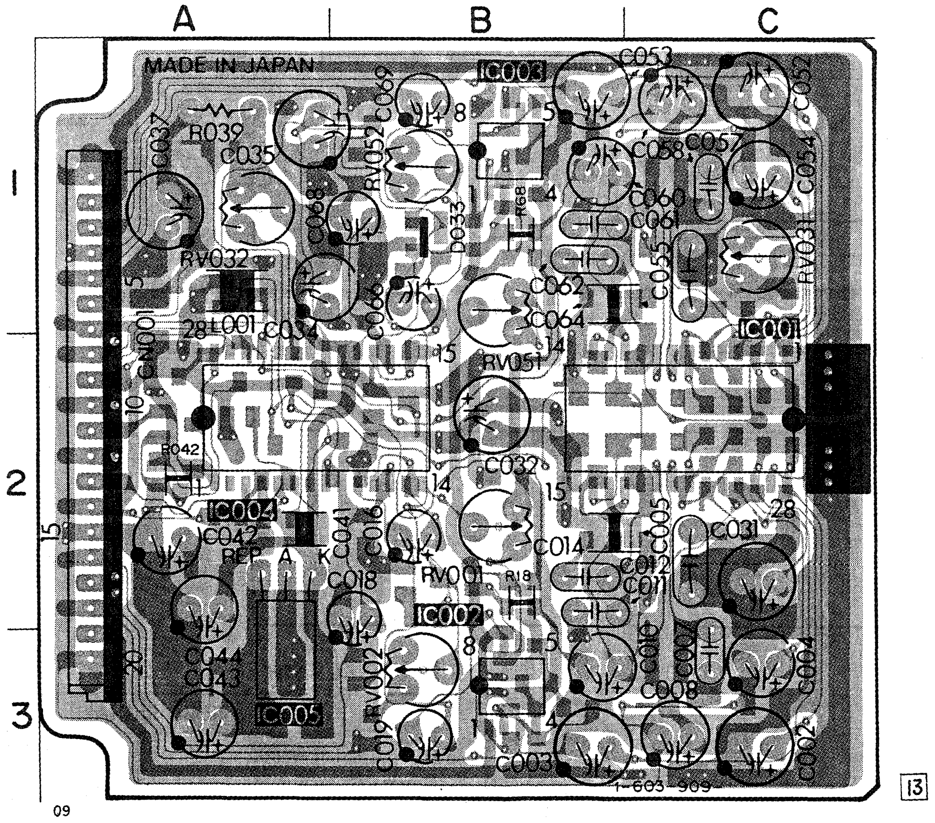
3
CN851
CN852
CN853
IC853
IC854
IC855
IC859
IC860
Q852
Q853
X852
C5
❶
❷
❸
1-630-910-
13

PD-19P BOARD (CONDUCTOR SIDE)	
IC853	A-1
IC854	A-2
IC855	C-1
IC859	D-1
IC860	C-2
Q852	A-3
Q853	A-3

PA-27P BOARD (COMPONENT SIDE)

PA-27P BOARD (COMPONENT SIDE)	
D033	B-1
IC001	C-2
IC002	B-3
IC003	B-1
IC004	A-2
IC005	A-3


A
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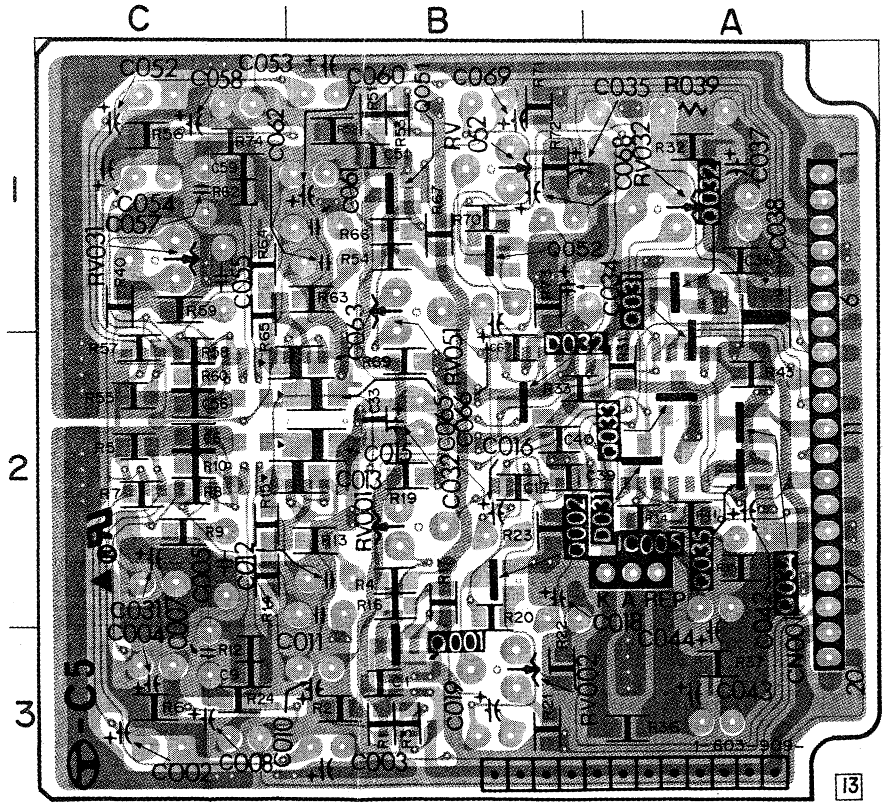
MADE IN JAPAN
CN001
IC001
IC002
IC003
IC004
IC005
D033
RV001
RV002
RV031
RV032
RV051
1-603-909-
13
09

PA-27P BOARD (CONDUCTOR SIDE)


C
B
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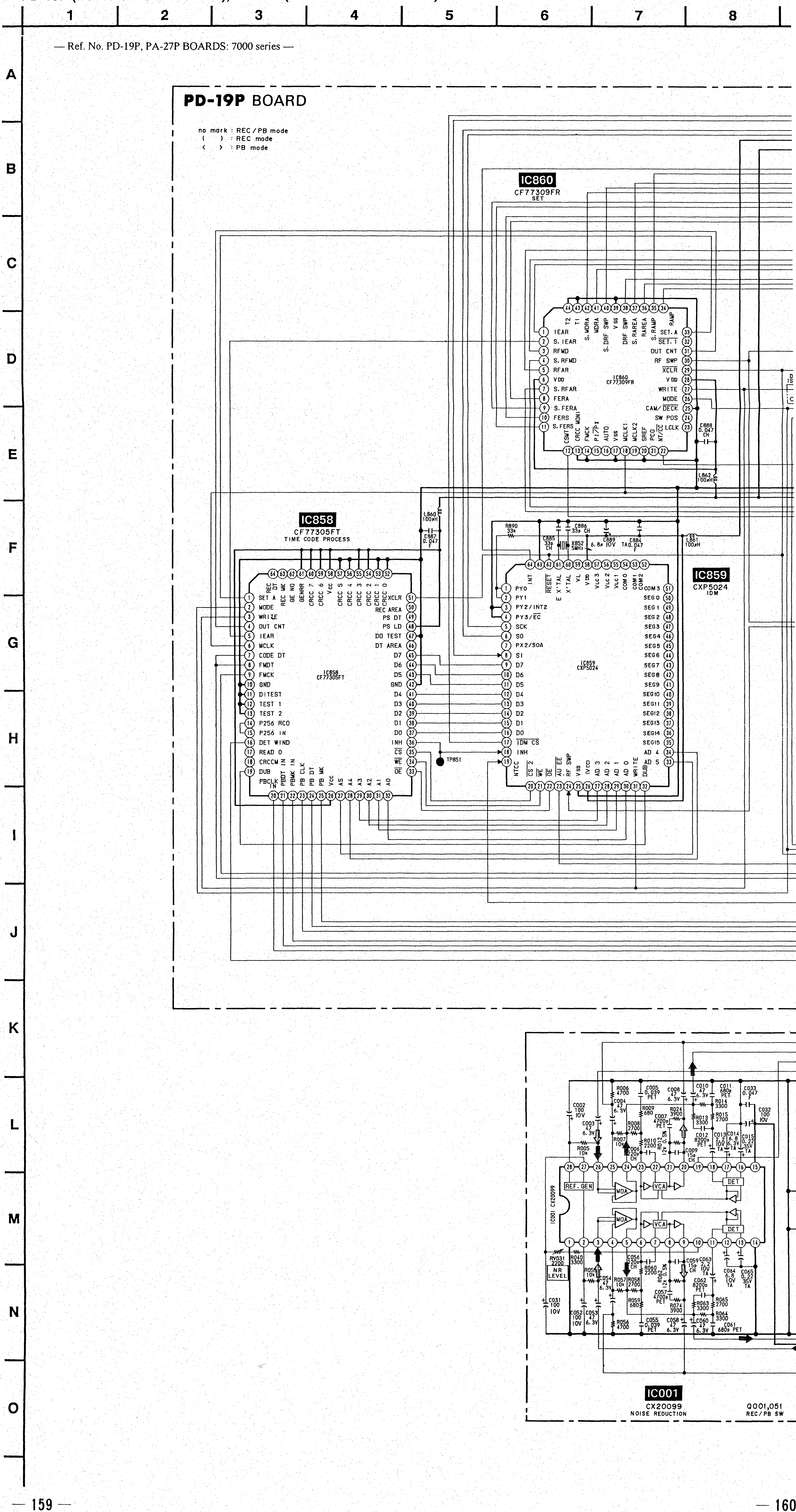
C5
CN001
Q001
Q002
Q031
Q032
Q033
Q034
Q035
Q051
Q052
D031
D032
RV031
RV032
RV051
RV002
1-603-909-
13

PA-27P BOARD (CONDUCTOR SIDE)	
D031	A-2
D032	B-2
Q001	B-3
Q002	B-2
Q031	A-1
Q032	A-1
Q033	A-2
Q034	A-2
Q035	A-2
Q051	B-1
Q052	B-1

	⟨ DIODE ⟩		
D031	8-719-104-34	DIODE	1S2836
D032	8-719-104-34	DIODE	1S2836
D033	8-719-104-34	DIODE	1S2836
	⟨ IC ⟩		
IC001	8-752-009-90	IC	CX20099
IC002	8-759-981-92	IC	RC4558M
IC003	8-759-981-92	IC	RC4558M
IC004	8-752-322-57	IC	CXD1077M
IC005	8-759-908-15	IC	TL431CLP
	⟨ TRANSISTOR ⟩		
Q001	8-729-202-38	TRANSISTOR	2SC3326N-A
Q002	8-729-202-38	TRANSISTOR	2SC3326N-A
Q031	8-729-901-06	TRANSISTOR	DTA144EK
Q032	8-729-901-06	TRANSISTOR	DTA144EK
Q033	8-729-901-06	TRANSISTOR	DTA144EK
Q034	8-729-216-22	TRANSISTOR	2SA1162-G
Q035	8-729-216-22	TRANSISTOR	2SA1162-G
Q051	8-729-202-38	TRANSISTOR	2SC3326N-A
Q052	8-729-202-38	TRANSISTOR	2SC3326N-A

PD-19P (PCM AUDIO PROCESS), PA-27P (PCM AUDIO PROCESS) SCHEMATIC DIAGRAMS

— Ref. No. PD-19P, PA-27P BOARDS: 7000 series —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H
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J
K
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M
N
O
PD-19P BOARD
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
IC860
CF77309FR
SET
IEAR
S. IEAR
RFMD
S. RFMD
RFAR
VDD
S. RFAR
FERA
S. FERA
FERS
S. FERS
SET. A
SET. 1
OUT CNT
RF SWP
XCLR
WRITE
MODE
CAM/DECK
SW POS
LCLK
C888 0.047 CH
L862 100μH
IC858
CF77305FT
TIME CODE PROCESS
SET A
MODE
WRITE
OUT CNT
IEAR
MCLK
CODE DT
FMDT
FMCK
GND
DITEST
TEST 1
TEST 2
P256 RCO
P256 IN
DET WIND
READ 0
CRCCM IN
DUB
PBCLK IN
XCLR
REC AREA
PS DT
PS LD
DO TEST
DT AREA
D7
D6
D5
GND
D4
D3
D2
D1
D0
INH
CS
WE
OE
L860 100μH
C887 0.047 F
TP851
IC859
CXP5024
IDM
R890 33k
C885 33p CH
C886 33p CH
X852 6.8MHz
C889 6.8μ 10V
C884 TAG.047 F
L861 100μH
PY0
PY1
PY2/INT2
PY3/EC
SCK
SO
PX2/SOA
SI
D7
D6
D5
D4
D3
D2
D1
D0
IDM CS
INH
COM3
SEG0
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
AD 4
AD 5
IC001 CX20099
REF. GEN
MDA
VCA
DET
RV031 2200
NR LEVEL
IC001
CX20099
NOISE REDUCTION
Q001,051
REC/PB SW

(DIODE)

D851	8-719-104-34	DIODE	1S2836
D852	8-719-400-18	DIODE	MA152WK
D853	8-719-400-18	DIODE	MA152WK

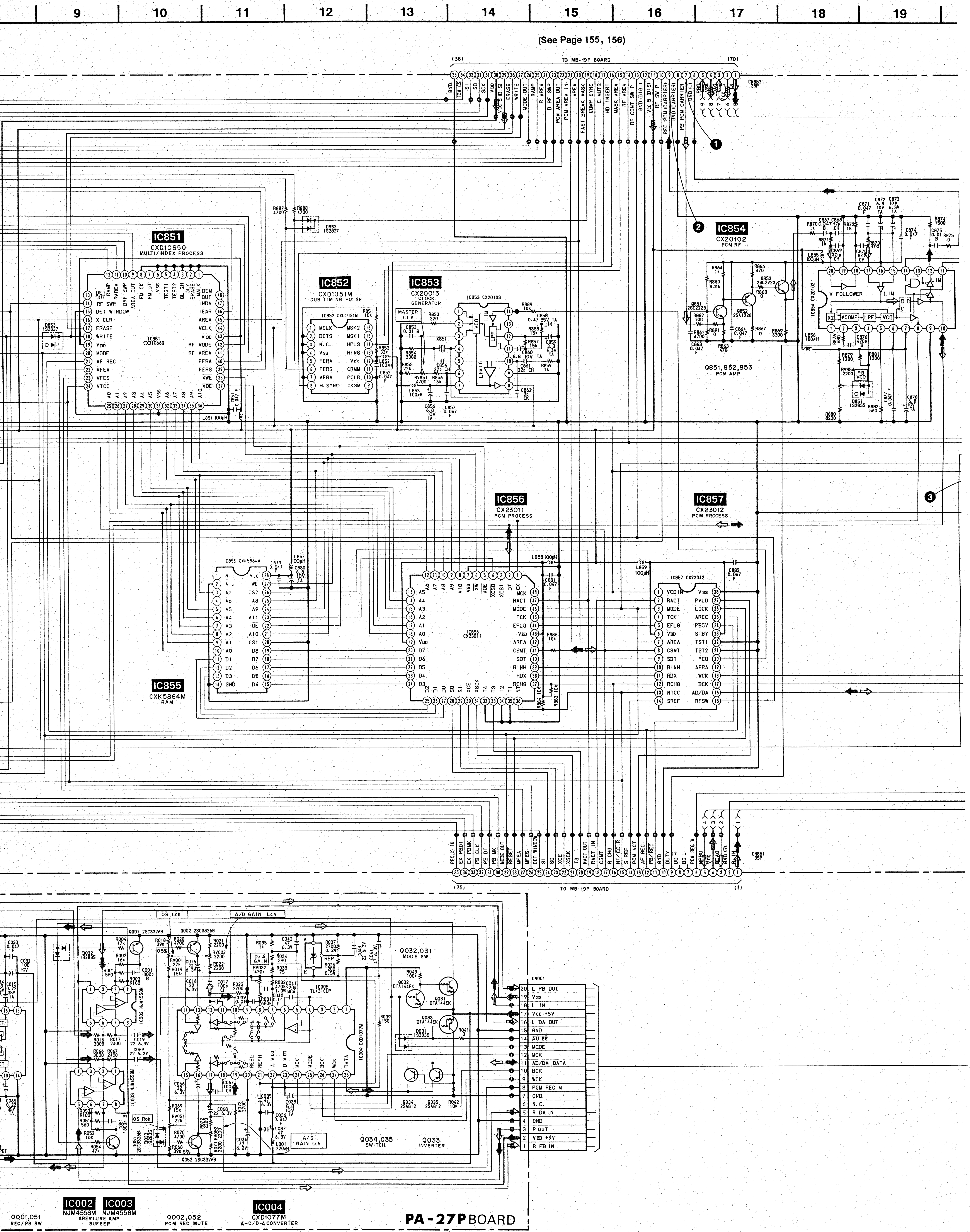
(IC)

IC851	8-752-324-45	IC	CXD1066Q-Z
IC852	8-759-929-17	IC	CXD1051M
IC853	8-752-010-30	IC	CX20103
IC854	8-752-010-20	IC	CX20102
IC855	8-752-332-28	IC	CXK5864BM-12L-TL
IC856	8-759-948-61	IC	CX23011-Z
IC857	8-759-911-19	IC	CX23012
IC858	8-759-054-79	IC	CF77499PG
IC859	8-752-835-09	IC	CXP5084H-645Q
IC860	8-759-972-13	IC	CF77309FR

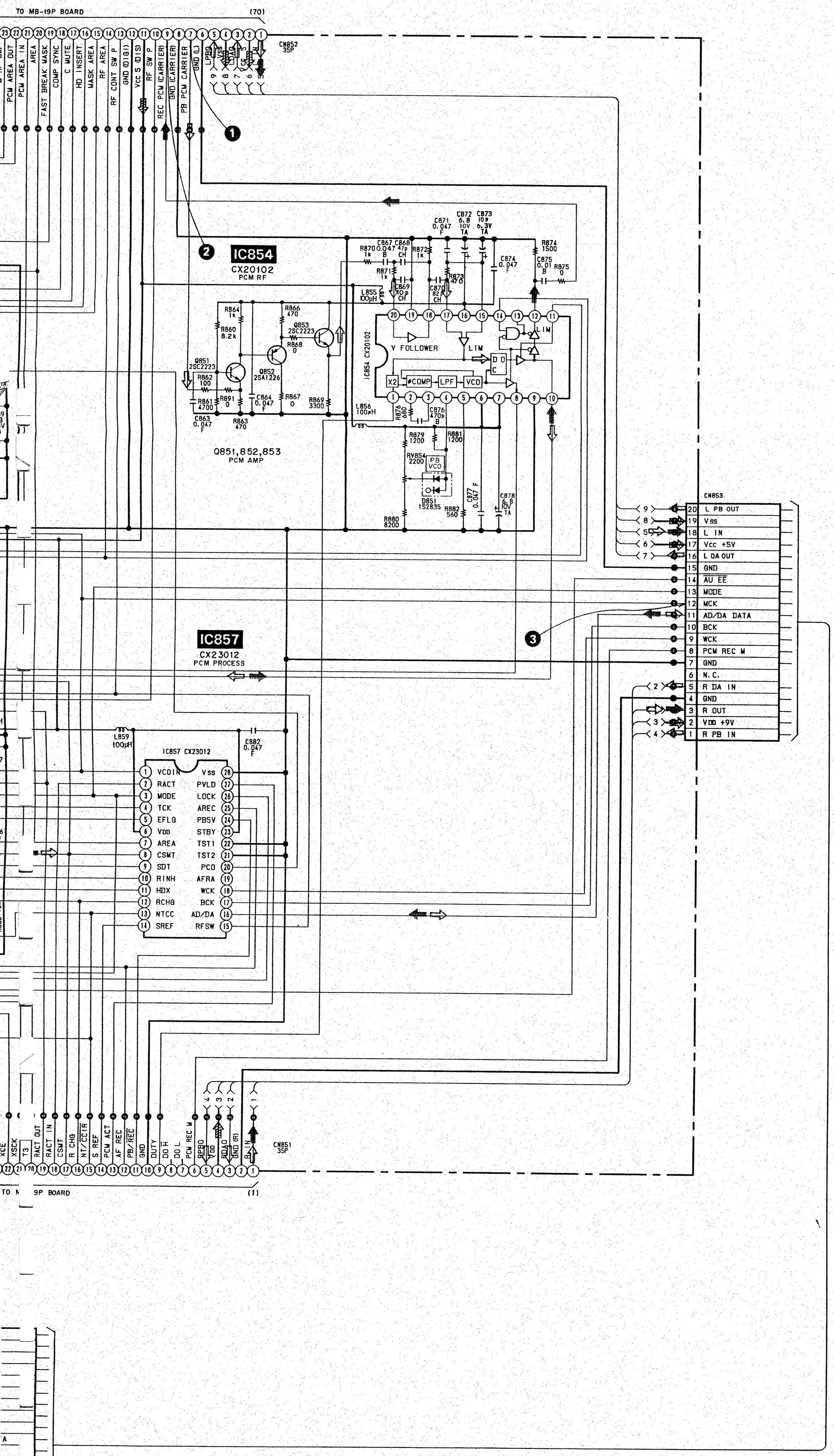
(TRANSISTOR)

Q851	8-729-102-07	TRANSISTOR	2SC2223-F13
Q852	8-729-122-63	TRANSISTOR	2SA1226-E4
Q853	8-729-102-07	TRANSISTOR	2SC2223-F13

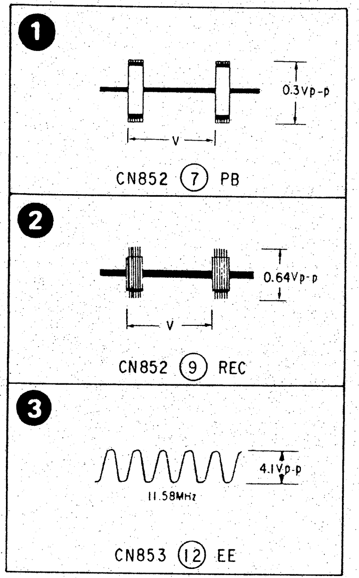
(See Page 155, 156)


9
10
11
12
13
14
15
16
17
18
19
(36)
TO MB-19P BOARD
(70)
CN852
35P
GND
IDM CS
SI
SO
SCK
VDD
Vcc 5 (DIS)
ERASE
WRITE
MODE OUT
RAMP
R AREA
D RF SWP
PCM AREA OUT
PCM AREA IN
AREA
FAST BREAK MASK
COMP SYNC
C MUTE
HD INSERT
MASK AREA
RF AREA
RF CONT SW P
GND (DIGI)
Vcc 5 (DIS)
RF SW P
REC PCM (CARRIER)
GND (CARRIER)
PB PCM CARRIER
GND (L)
LPBO
VSS
LDAO
Vcc 5
IN
1
2
3
IC851
CXD1065Q
MULTI/INDEX PROCESS
IC852
CXD1051M
DUB TIMING PULSE
IC853
CX20013
CLOCK GENERATOR
IC854
CX20102
PCM RF
Q851,852,853
PCM AMP
IC855
CXK5864M
RAM
IC856
CX23011
PCM PROCESS
IC857
CX23012
PCM PROCESS
(35)
TO MB-19P BOARD
(1)
CN851
35P
PBCLK IN
EX PBDT
EX PBMK
PB CLK
PB DT
PB MK
MODE OUT
RESET
MFEA
MFES
DET WINDOW
SI
SO
XCE
XSCK
T3
RACT OUT
RACT IN
CSMT
R CHG
NT/CCIR
S REF
PCM ACT
AF REC
PB/REC
GND
DUTY
DO H
DO L
PCM REC M
RPBO
VDD
RDAO
GND (R)
R IN
CN001
20 L PB OUT
19 VSS
18 L IN
17 Vcc +5V
16 L DA OUT
15 GND
14 AU EE
13 MODE
12 MCK
11 AD/DA DATA
10 BCK
9 WCK
8 PCM REC M
7 GND
6 N.C.
5 R DA IN
4 GND
3 R OUT
2 VDD +9V
1 R PB IN
OS Lch
A/D GAIN Lch
OS Rch
A/D GAIN Lch
Q032,031
MODE SW
IC005
TL431CLP
IC004 CXD1077M
Q034,035
SWITCH
Q033
INVERTER
IC002
NJM4558M
IC003
NJM4558M
ARERTURE AMP
BUFFER
Q001,051
REC/PB SW
Q002,052
PCM REC MUTE
IC004
CXD1077M
A-D/D-A CONVERTER
PA-27P BOARD

ee Page 155, 156)

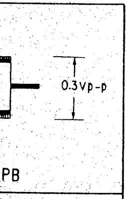

TO MB-19P BOARD
(70)
CN852
35P
PCM AREA OUT
PCM AREA IN
AREA
FAST BREAK MASK
COMP SYNC
C MUTE
HD INSERT
MASK AREA
RF AREA
RF CONT SW P
GND (D)(G)
Vcc 5 (D)(S)
RF SW P
REC PCM (CARRIER)
GND (CARRIER)
PB PCM CARRIER
GND (L)
IC854
CX20102
PCM RF
V FOLLOWER
LIM
X2
φCOMP
LPF
VCO
IC854 CX20102
Q851,852,853
PCM AMP
Q851 2SC2223
Q852 2SA1226
Q853 2SC2223
RV854 2200
PB VCO
D851 1S2835
L855 100μH
L856 100μH
CN853
20 L PB OUT
19 Vss
18 L IN
17 Vcc +5V
16 L DA OUT
15 GND
14 AU EE
13 MODE
12 MCK
11 AD/DA DATA
10 BCK
9 WCK
8 PCM REC M
7 GND
6 N.C.
5 R DA IN
4 GND
3 R OUT
2 VDD +9V
1 R PB IN
IC857
CX23012
PCM PROCESS
L859 100μH
C882 0.047
IC857 CX23012
1 VCOI
2 RACT
3 MODE
4 TCK
5 EFLG
6 VDD
7 AREA
8 CSMT
9 SDT
10 RINH
11 HDX
12 RCHG
13 NTCC
14 SREF
28 Vss
27 PVLD
26 LOCK
25 AREC
24 PB5V
23 STBY
22 TST1
21 TST2
20 PCO
19 AFRA
18 WCK
17 BCK
16 AD/DA
15 RFSW
XCE
XSCK
T3
RACT OUT
RACT IN
CSMT
R CHG
NT/ECTR
S REF
PCM ACT
AF REC
PB/REC
GND
DUTY
DO H
DO L
PCM REC M
CN851
35P
TO MB-19P BOARD
(1)

PD-19P BOARD

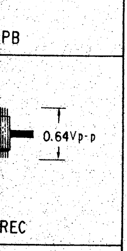

❶
0.3Vp-p
V
CN852 ⑦ PB
❷
0.64Vp-p
V
CN852 ⑨ REC
❸
4.1Vp-p
11.58MHz
CN853 ⑫ EE

- SIGNAL PATH

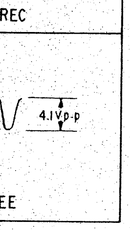
	VIDEO SIGNAL			A S
	CHROMA	Y	Y/CHROMA	
REC				
PB				



PB



REC



EE

SIGNAL		AUDIO SIGNAL
	Y/CHROMA	
		➡
		⇨

IF-38P (VIDEO SIGNAL SELEC) PRINTED WIRING BOARD

— Ref. No. IF-38P BOARD: 12000 series —

IF-38P BOARD
(COMPONENT
SIDE)

D701	C-1
D702	C-1
IC001	K-2
IC002	K-3
IC004	J-3
IC101	I-2
IC301	E-5
IC302	F-5
IC303	F-5
IC304	F-6
IC306	G-5
IC307	G-5
IC308	G-5
IC309	E-2
IC310	F-2
IC311	F-2
IC312	F-1
IC314	G-2
IC315	G-2
IC316	G-2
IC401	A-2
IC501	I-6
IC502	E-5
IC503	C-6
IC504	F-6
IC505	C-1
IC701	B-5
IC702	K-5
IC703	K-5
IC704	C-1
IC705	A-5
IC706	K-6
IC707	I-6
IC708	A-5
IC709	A-4
IC710	G-3
IC801	I-5
IC802	H-5
IC803	H-6
IC804	H-5
IC805	H-6
IC901	C-3
IC902	D-3
Q001	K-2
Q004	K-3
Q005	K-2
Q009	H-2
Q101	I-1
Q102	J-2
Q107	K-1
Q201	H-3
Q203	H-3
Q204	I-2
Q205	H-2
Q206	H-1
Q307	E-1
Q401	A-3
Q414	B-1
Q502	A-6
Q506	B-6
Q508	C-6
Q510	D-6
Q511	D-6
Q512	D-6
Q513	D-6
Q514	D-6
Q516	D-6
Q517	D-6
Q521	C-6
Q522	C-6
Q523	C-6
Q524	C-6
Q525	C-6
Q526	B-6
Q527	B-6
Q528	E-2
Q531	D-1
Q532	D-1
Q536	D-5
Q537	D-5
Q539	C-4
Q540	C-4
Q541	C-4
Q542	C-5
Q543	C-5
Q802	H-6
Q803	H-6
Q804	I-6
Q809	J-6
Q810	K-6
Q811	J-6
Q812	J-5
Q816	I-6
Q817	J-6
Q821	H-5
Q901	K-3
Q902	L-3
Q903	E-3
Q904	E-3
Q905	E-3
Q907	D-2
Q908	F-3

〈 DIODE 〉

D001	8-719-400-18	DIODE	MA152WK
D701	8-719-400-18	DIODE	MA152WK
D702	8-719-908-30	DIODE	DA106K

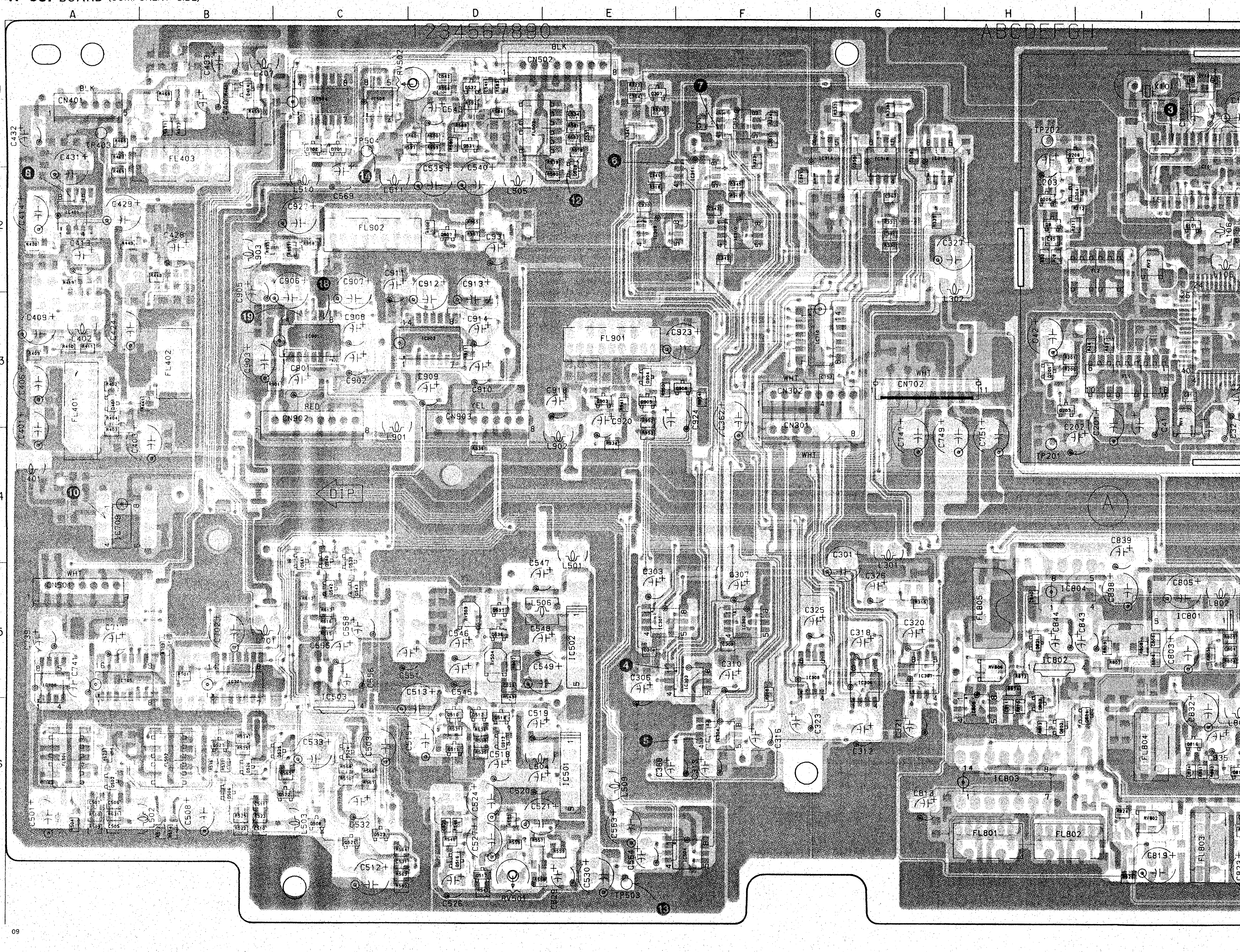
〈 IC 〉

IC001	8-759-710-29	IC	NJM2235M
IC002	8-752-334-55	IC	CXD1175AM
IC004	8-752-342-61	IC	CXD2105AQ
IC101	8-759-603-54	IC	M51271FP
IC301	8-759-710-29	IC	NJM2235M
IC302	8-759-710-86	IC	NJM2233BM
IC303	8-759-710-07	IC	NJM2234M
IC304	8-759-710-07	IC	NJM2234M
IC306	8-759-710-86	IC	NJM2233BM
IC307	8-759-710-07	IC	NJM2234M
IC308	8-759-710-86	IC	NJM2233BM
IC309	8-759-710-07	IC	NJM2234M
IC310	8-759-710-86	IC	NJM2233BM
IC311	8-759-710-07	IC	NJM2234M
IC312	8-759-710-07	IC	NJM2234M
IC314	8-759-710-86	IC	NJM2233BM
IC315	8-759-710-07	IC	NJM2234M
IC316	8-759-710-86	IC	NJM2233BM
IC401	8-759-710-86	IC	NJM2233BM
IC501	8-759-200-60	IC	TA7060AP
IC502	8-759-200-60	IC	TA7060AP
IC503	8-759-400-06	IC	AN608P
IC504	8-759-710-07	IC	NJM2234M
IC505	8-759-710-07	IC	NJM2234M
IC701	8-759-009-10	IC	MC14069UBF
IC702	8-759-032-11	IC	MC74HC04AF
IC703	8-759-009-51	IC	MC14538BF
IC704	8-759-009-10	IC	MC14069UBF
IC705	8-759-710-61	IC	NJM2229M
IC706	8-759-710-61	IC	NJM2229M
IC707	8-759-630-81	IC	M50455-079FP
IC708	8-759-710-62	IC	NJM2246M
IC709	8-759-972-26	IC	LM1881N
IC710	8-759-032-11	IC	MC74HC04AF
IC801	8-759-200-60	IC	TA7060AP
IC802	8-759-402-33	IC	AN607P
IC803	8-752-201-30	IC	CX22013
IC804	8-759-969-13	IC	SN16913P
IC805	8-759-101-12	IC	uPC311G2
IC901	8-752-009-51	IC	CX20095A
IC902	8-752-009-51	IC	CX20095A

〈 TRANSISTOR 〉

Q001	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q002	8-729-216-22	TRANSISTOR	2SA1162-G
Q003	8-729-216-22	TRANSISTOR	2SA1162-G
Q004	8-729-120-28	TRANSISTOR	2SC
Q005	8-729-216-22	TRANSISTOR	2SA
Q006	8-729-216-22	TRANSISTOR	2SA
Q007	8-729-120-28	TRANSISTOR	2SC
Q008	8-729-216-22	TRANSISTOR	2SA
Q009	8-729-216-22	TRANSISTOR	2SA
Q010	8-729-120-28	TRANSISTOR	2SC
Q011	8-729-100-66	TRANSISTOR	2SC
Q012	8-729-100-66	TRANSISTOR	2SC
Q101	8-729-100-66	TRANSISTOR	2SC
Q102	8-729-100-66	TRANSISTOR	2SC
Q103	8-729-100-66	TRANSISTOR	2SC
Q107	8-729-100-66	TRANSISTOR	2SC
Q201	8-729-100-66	TRANSISTOR	2SC
Q202	8-729-100-66	TRANSISTOR	2SC
Q203	8-729-100-66	TRANSISTOR	2SC
Q204	8-729-100-66	TRANSISTOR	2SC
Q205	8-729-100-66	TRANSISTOR	2SC
Q206	8-729-100-66	TRANSISTOR	2SC
Q301	8-729-100-66	TRANSISTOR	2SC
Q302	8-729-100-66	TRANSISTOR	2SC
Q303	8-729-100-66	TRANSISTOR	2SC
Q304	8-729-100-66	TRANSISTOR	2SC
Q305	8-729-100-66	TRANSISTOR	2SC
Q306	8-729-100-66	TRANSISTOR	2SC
Q307	8-729-100-66	TRANSISTOR	2SC
Q308	8-729-100-66	TRANSISTOR	2SC

IF-38P BOARD (COMPONENT SIDE)



SISTOR	2SC1623-L5L6
SISTOR	2SA1162-G
SISTOR	2SA1162-G
SISTOR	2SC1623-L5L6
ISISTOR	2SA1162-G
ISISTOR	2SA1162-G
ISISTOR	2SC1623-L5L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
ISISTOR	2SC1623-L6
NSISTOR	2SC1623-L6

Q309	8-729-100-66	TRANSISTOR	2SC1623-L6
Q310	8-729-100-66	TRANSISTOR	2SC1623-L6
Q401	8-729-100-66	TRANSISTOR	2SC1623-L6
Q402	8-729-100-66	TRANSISTOR	2SC1623-L6
Q403	8-729-100-66	TRANSISTOR	2SC1623-L6
Q404	8-729-100-66	TRANSISTOR	2SC1623-L6
Q405	8-729-100-66	TRANSISTOR	2SC1623-L6
Q410	8-729-100-66	TRANSISTOR	2SC1623-L6
Q411	8-729-100-66	TRANSISTOR	2SC1623-L6
Q412	8-729-100-66	TRANSISTOR	2SC1623-L6
Q413	8-729-100-66	TRANSISTOR	2SC1623-L6
Q414	8-729-100-66	TRANSISTOR	2SC1623-L6
Q415	8-729-100-66	TRANSISTOR	2SC1623-L6
Q416	8-729-100-66	TRANSISTOR	2SC1623-L6
Q417	8-729-100-66	TRANSISTOR	2SC1623-L6
Q501	8-729-100-66	TRANSISTOR	2SC1623-L6
Q502	8-729-100-66	TRANSISTOR	2SC1623-L6
Q503	8-729-901-06	TRANSISTOR	DTA144EK
Q504	8-729-100-66	TRANSISTOR	2SC1623-L6
Q505	8-729-100-66	TRANSISTOR	2SC1623-L6
Q506	8-729-100-66	TRANSISTOR	2SC1623-L6
Q507	8-729-901-06	TRANSISTOR	DTA144EK
Q508	8-729-100-66	TRANSISTOR	2SC1623-L6
Q509	8-729-100-66	TRANSISTOR	2SC1623-L6
Q510	8-729-100-66	TRANSISTOR	2SC1623-L6
Q511	8-729-901-01	TRANSISTOR	DTC144EK
Q512	8-729-100-66	TRANSISTOR	2SC1623-L6

Q513	8-729-100-66	TRANSISTOR	2SC1623-L6
Q514	8-729-100-66	TRANSISTOR	2SC1623-L6
Q515	8-729-100-66	TRANSISTOR	2SC1623-L6
Q516	8-729-100-66	TRANSISTOR	2SC1623-L6
Q517	8-729-100-66	TRANSISTOR	2SC1623-L6
Q518	8-729-100-66	TRANSISTOR	2SC1623-L6
Q519	8-729-100-66	TRANSISTOR	2SC1623-L6
Q520	8-729-100-66	TRANSISTOR	2SC1623-L6
Q521	8-729-100-66	TRANSISTOR	2SC1623-L6
Q522	8-729-901-06	TRANSISTOR	DTA144EK
Q523	8-729-100-66	TRANSISTOR	2SC1623-L6
Q524	8-729-100-66	TRANSISTOR	2SC1623-L6
Q525	8-729-901-06	TRANSISTOR	DTA144EK
Q526	8-729-100-66	TRANSISTOR	2SC1623-L6
Q527	8-729-100-66	TRANSISTOR	2SC1623-L6
Q528	8-729-100-66	TRANSISTOR	2SC1623-L6
Q529	8-729-100-66	TRANSISTOR	2SC1623-L6
Q530	8-729-901-06	TRANSISTOR	DTA144EK
Q531	8-729-100-66	TRANSISTOR	2SC1623-L6
Q532	8-729-100-66	TRANSISTOR	2SC1623-L6
Q533	8-729-100-66	TRANSISTOR	2SC1623-L6
Q534	8-729-100-66	TRANSISTOR	2SC1623-L6
Q535	8-729-100-66	TRANSISTOR	2SC1623-L6
Q536	8-729-100-66	TRANSISTOR	2SC1623-L6
Q537	8-729-100-66	TRANSISTOR	2SC1623-L6
Q538	8-729-100-66	TRANSISTOR	2SC1623-L6
Q539	8-729-901-06	TRANSISTOR	DTA144EK

Q540	8-729-901-06	TRANSISTOR	DTA144EK
Q541	8-729-901-06	TRANSISTOR	DTA144EK
Q542	8-729-901-01	TRANSISTOR	DTC144EK
Q543	8-729-901-01	TRANSISTOR	DTC144EK
Q701	8-729-901-01	TRANSISTOR	DTC144EK
Q702	8-729-901-01	TRANSISTOR	DTC144EK
Q703	8-729-216-22	TRANSISTOR	2SA1162-G
Q704	8-729-100-66	TRANSISTOR	2SC1623-L6
Q705	8-729-216-22	TRANSISTOR	2SA1162-G
Q706	8-729-216-22	TRANSISTOR	2SA1162-G
Q707	8-729-216-22	TRANSISTOR	2SA1162-G
Q708	8-729-901-01	TRANSISTOR	DTC144EK
Q801	8-729-100-66	TRANSISTOR	2SC1623-L6
Q802	8-729-100-66	TRANSISTOR	2SC1623-L6
Q803	8-729-202-38	TRANSISTOR	2SC3326N-A
Q804	8-729-100-66	TRANSISTOR	2SC1623-L6
Q805	8-729-100-66	TRANSISTOR	2SC1623-L6
Q806	8-729-100-66	TRANSISTOR	2SC1623-L6
Q807	8-729-100-66	TRANSISTOR	2SC1623-L6
Q808	8-729-100-66	TRANSISTOR	2SC1623-L6
Q809	8-729-100-66	TRANSISTOR	2SC1623-L6
Q810	8-729-100-66	TRANSISTOR	2SC1623-L6
Q811	8-729-100-66	TRANSISTOR	2SC1623-L6
Q812	8-729-100-66	TRANSISTOR	2SC1623-L6
Q813	8-729-100-66	TRANSISTOR	2SC1623-L6
Q814	8-729-100-66	TRANSISTOR	2SC1623-L6

Q815	8-729-100
Q816	8-729-100
Q817	8-729-100
Q818	8-729-100
Q819	8-729-100
Q820	8-729-100
Q821	8-729-320
Q822	8-729-100
Q901	8-729-216
Q902	8-729-216
Q903	8-729-100
Q904	8-729-100
Q905	8-729-100
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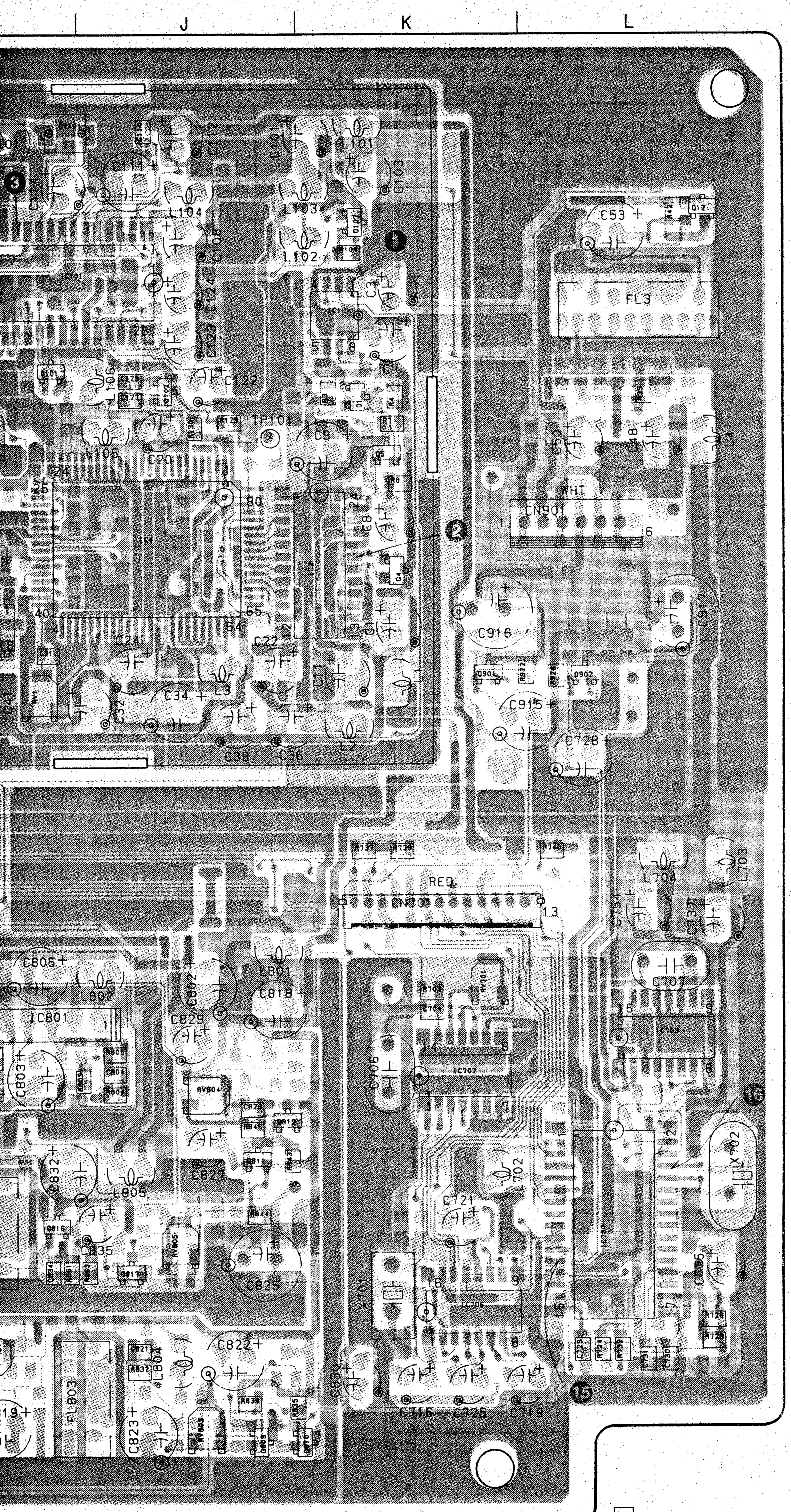
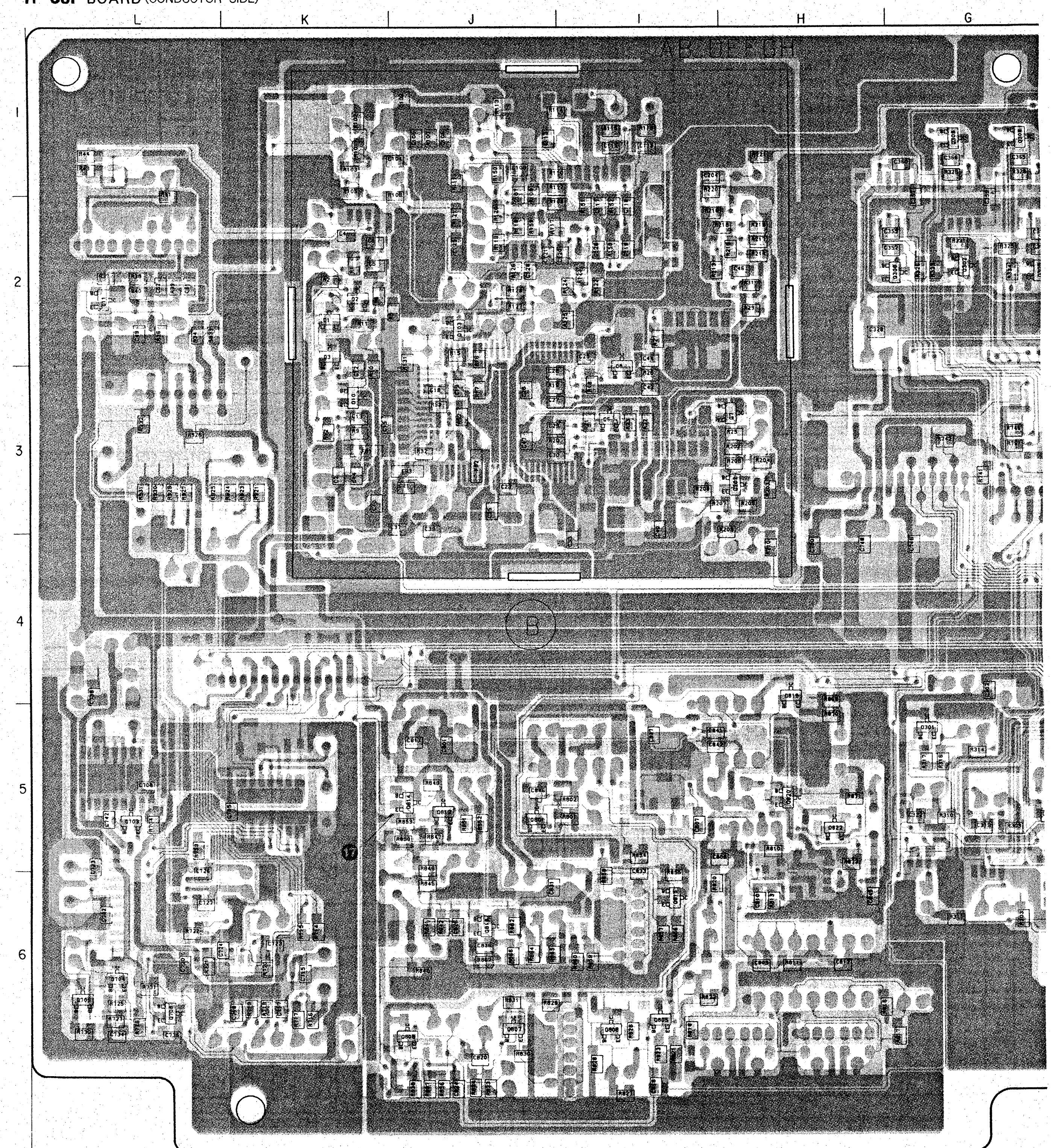
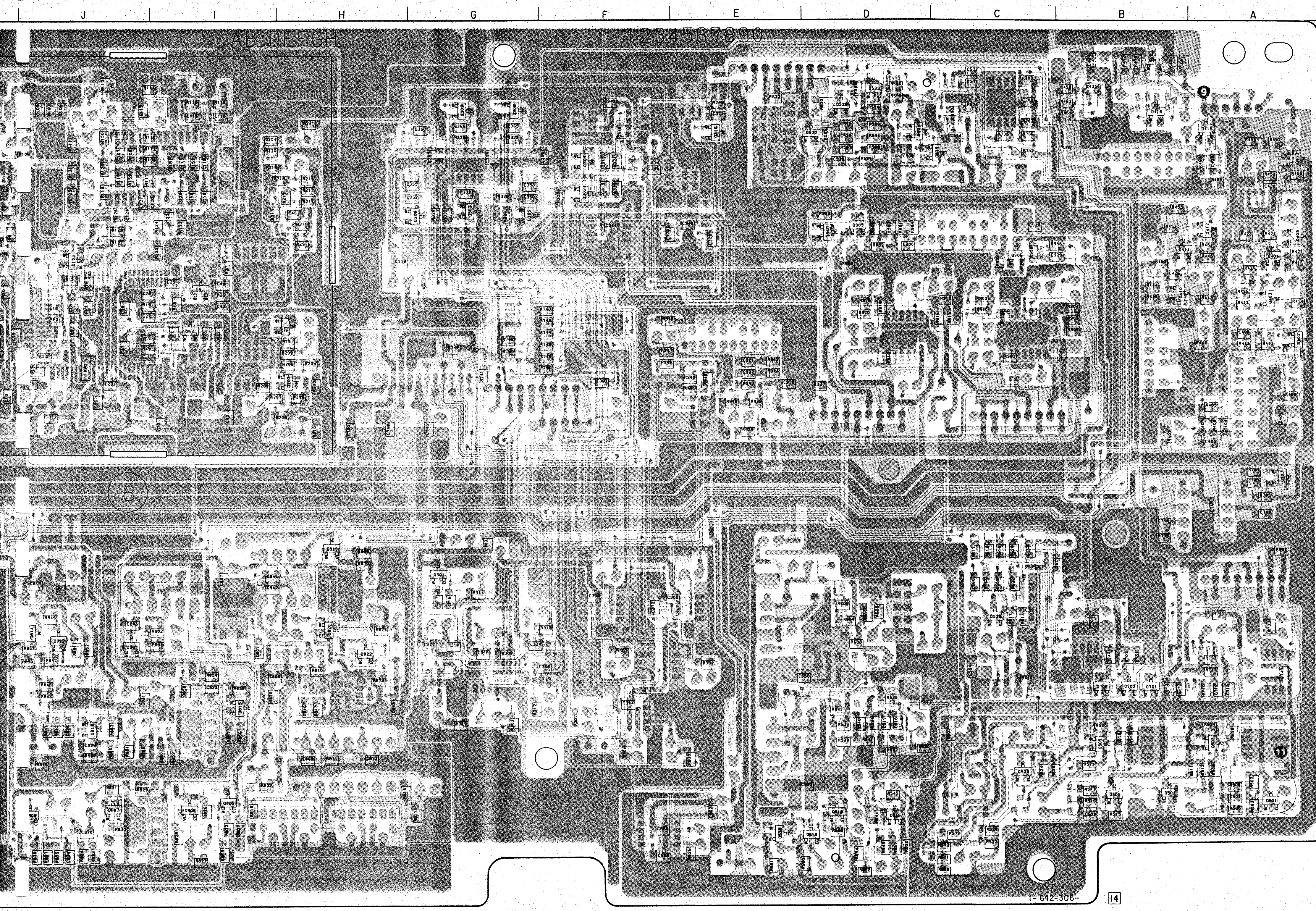
Q910	8-729-100

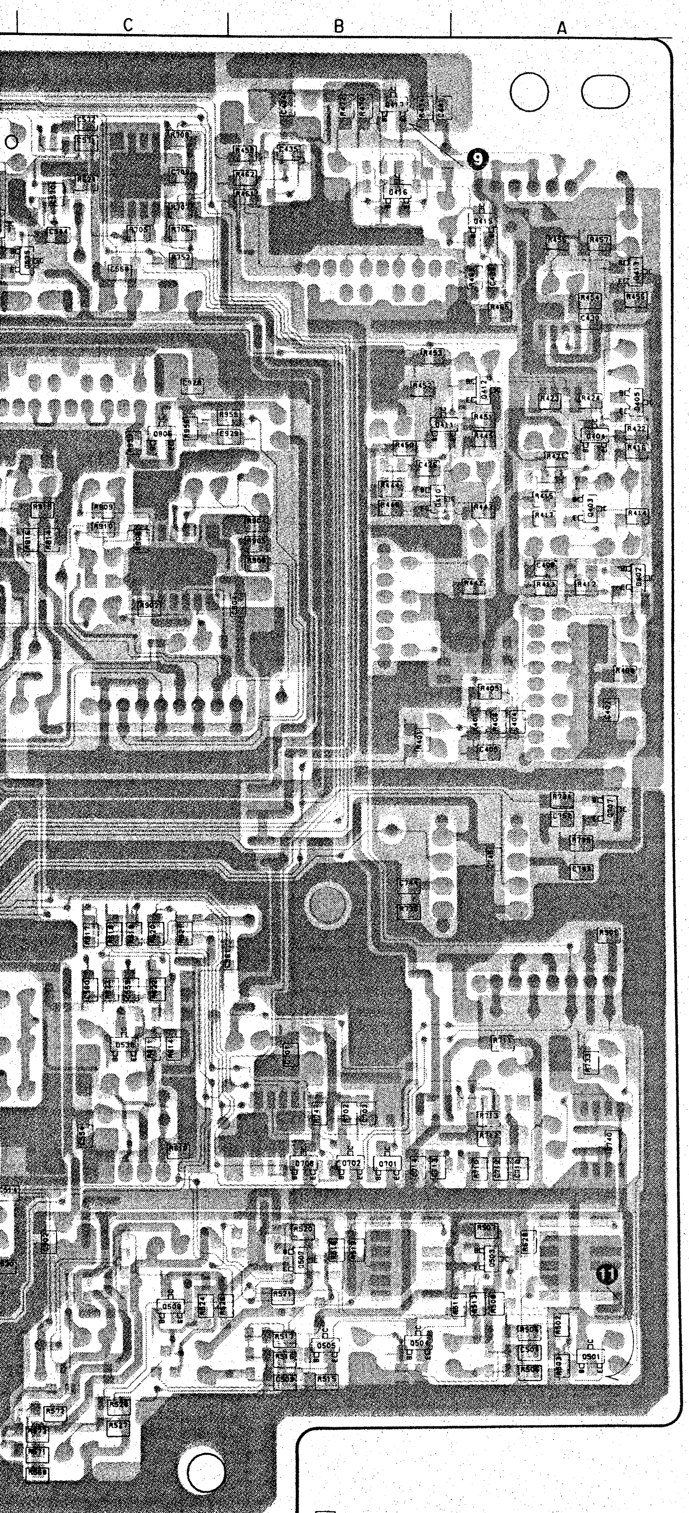


IF-38P BOARD (CONDUCTOR SIDE)



Q540	8-729-901-06	TRANSISTOR	DTA144EK
Q541	8-729-901-06	TRANSISTOR	DTA144EK
Q542	8-729-901-01	TRANSISTOR	DTC144EK
Q543	8-729-901-01	TRANSISTOR	DTC144EK
Q701	8-729-901-01	TRANSISTOR	DTC144EK
Q702	8-729-901-01	TRANSISTOR	DTC144EK
Q703	8-729-216-22	TRANSISTOR	2SA1162-G
Q704	8-729-100-66	TRANSISTOR	2SC1623-L6
Q705	8-729-216-22	TRANSISTOR	2SA1162-G
Q706	8-729-216-22	TRANSISTOR	2SA1162-G
Q707	8-729-216-22	TRANSISTOR	2SA1162-G
Q708	8-729-901-01	TRANSISTOR	DTC144EK
Q801	8-729-100-66	TRANSISTOR	2SC1623-L6
Q802	8-729-100-66	TRANSISTOR	2SC1623-L6
Q803	8-729-202-38	TRANSISTOR	2SC3326N-A
Q804	8-729-100-66	TRANSISTOR	2SC1623-L6
Q805	8-729-100-66	TRANSISTOR	2SC1623-L6
Q806	8-729-100-66	TRANSISTOR	2SC1623-L6
Q807	8-729-100-66	TRANSISTOR	2SC1623-L6
Q808	8-729-100-66	TRANSISTOR	2SC1623-L6
Q809	8-729-100-66	TRANSISTOR	2SC1623-L6
Q810	8-729-100-66	TRANSISTOR	2SC1623-L6
Q811	8-729-100-66	TRANSISTOR	2SC1623-L6
Q812	8-729-100-66	TRANSISTOR	2SC1623-L6
Q813	8-729-100-66	TRANSISTOR	2SC1623-L6
Q814	8-729-100-66	TRANSISTOR	2SC1623-L6
Q815	8-729-100-66	TRANSISTOR	2SC1623-L6
Q816	8-729-100-66	TRANSISTOR	2SC1623-L6
Q817	8-729-100-66	TRANSISTOR	2SC1623-L6
Q818	8-729-100-66	TRANSISTOR	2SC1623-L6
Q819	8-729-100-66	TRANSISTOR	2SC1623-L6
Q820	8-729-100-66	TRANSISTOR	2SC1623-L6
Q821	8-729-320-17	TRANSISTOR	2SA1122-CD
Q822	8-729-100-66	TRANSISTOR	2SC1623-L6
Q901	8-729-216-22	TRANSISTOR	2SA1162-G
Q902	8-729-216-22	TRANSISTOR	2SA1162-G
Q903	8-729-100-66	TRANSISTOR	2SC1623-L6
Q904	8-729-100-66	TRANSISTOR	2SC1623-L6
Q905	8-729-100-66	TRANSISTOR	2SC1623-L6
Q906	8-729-100-66	TRANSISTOR	2SC1623-L6
Q907	8-729-100-66	TRANSISTOR	2SC1623-L6
Q908	8-729-100-66	TRANSISTOR	2SC1623-L6
Q909	8-729-100-66	TRANSISTOR	2SC1623-L6
Q910	8-729-100-66	TRANSISTOR	2SC1623-L6





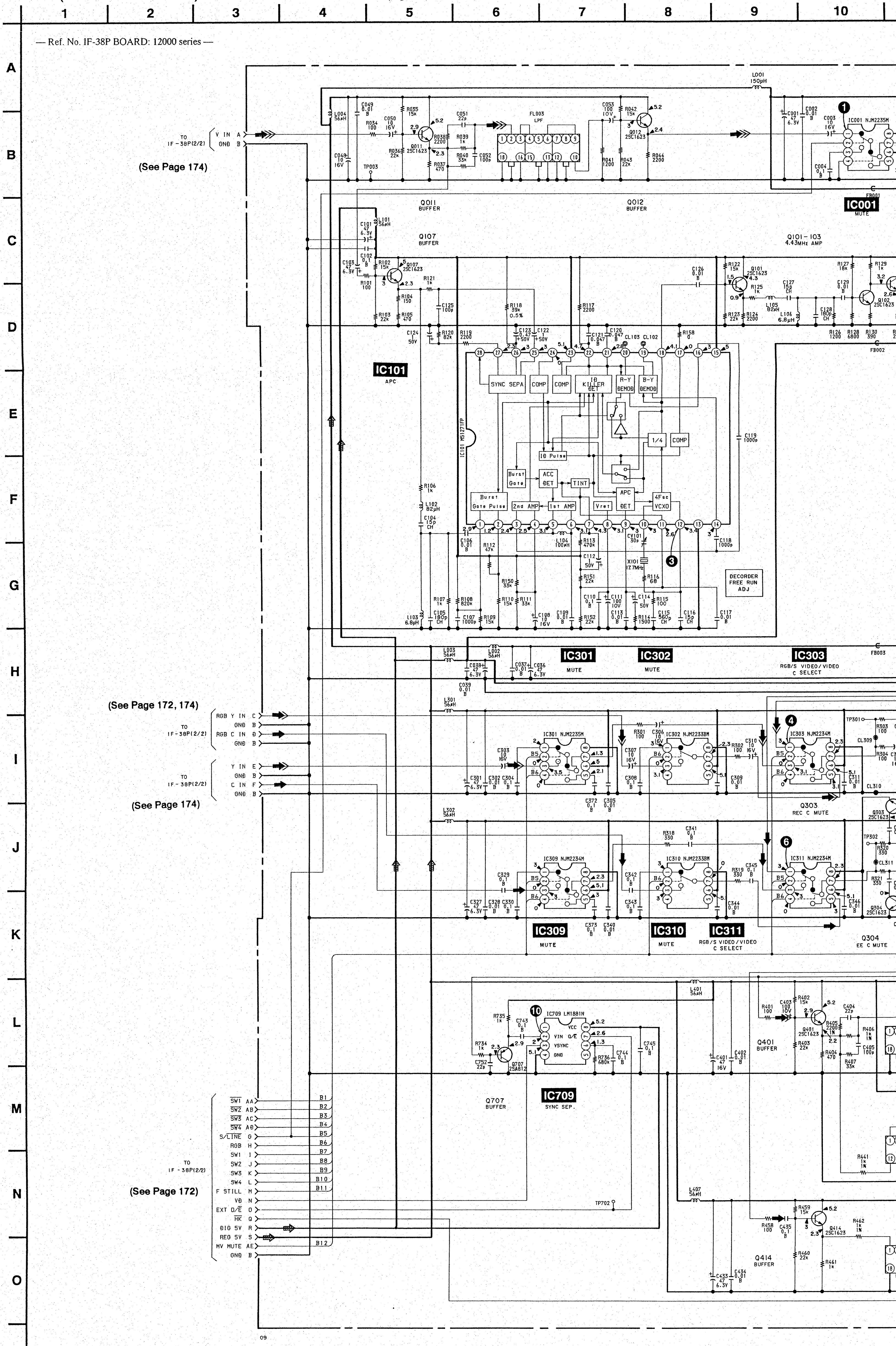
IF-38P BOARD (CONDUCTOR SIDE)

D001	K-2
Q002	K-2
Q003	K-2
Q006	I-3
Q007	H-3
Q008	I-3
Q010	K-3
Q011	I-2
Q012	I-6
Q103	J-2
Q202	H-3
Q301	G-5
Q302	G-2
Q303	F-2
Q304	F-2
Q305	G-2
Q306	G-2
Q308	G-1
Q309	G-1
Q310	E-1
Q402	A-3
Q403	A-3
Q404	A-2
Q405	A-2
Q410	B-3
Q411	B-2
Q412	A-2
Q413	A-2
Q415	A-1
Q416	B-2
Q417	B-2
Q501	A-6
Q503	A-6
Q504	B-6
Q505	B-6
Q507	B-6
Q509	C-6
Q515	D-6
Q518	D-6
Q519	D-6
Q520	E-6
Q529	D-1
Q530	D-1
Q533	D-1
Q534	D-1
Q535	C-1
Q538	C-5
Q701	B-6
Q702	B-6
Q703	I-5
Q704	I-6
Q705	I-6
Q706	I-6
Q707	A-4
Q708	B-6
Q801	J-5
Q805	I-6
Q806	I-6
Q807	J-6
Q808	J-6
Q813	J-5
Q814	J-5
Q815	I-6
Q818	J-6
Q819	H-4
Q820	H-5
Q822	H-5
Q906	C-2
Q909	D-2
Q910	D-2

IF-38P (VIDEO SIGNAL SELEC) SCHEMATIC DIAGRAM

- Refer to page 163 for Printed Wiring Board.

— Ref. No. IF-38P BOARD: 12000 series —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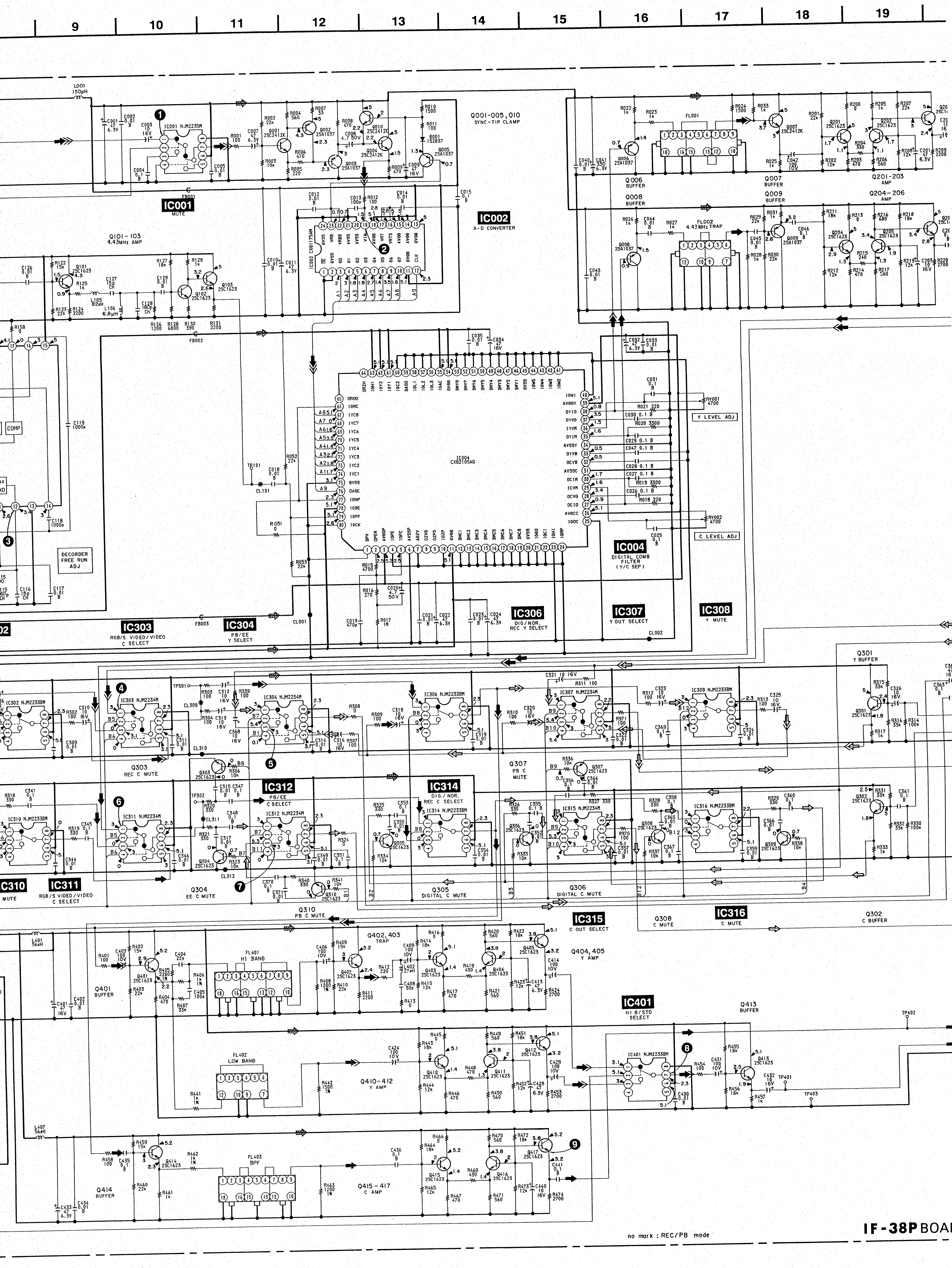
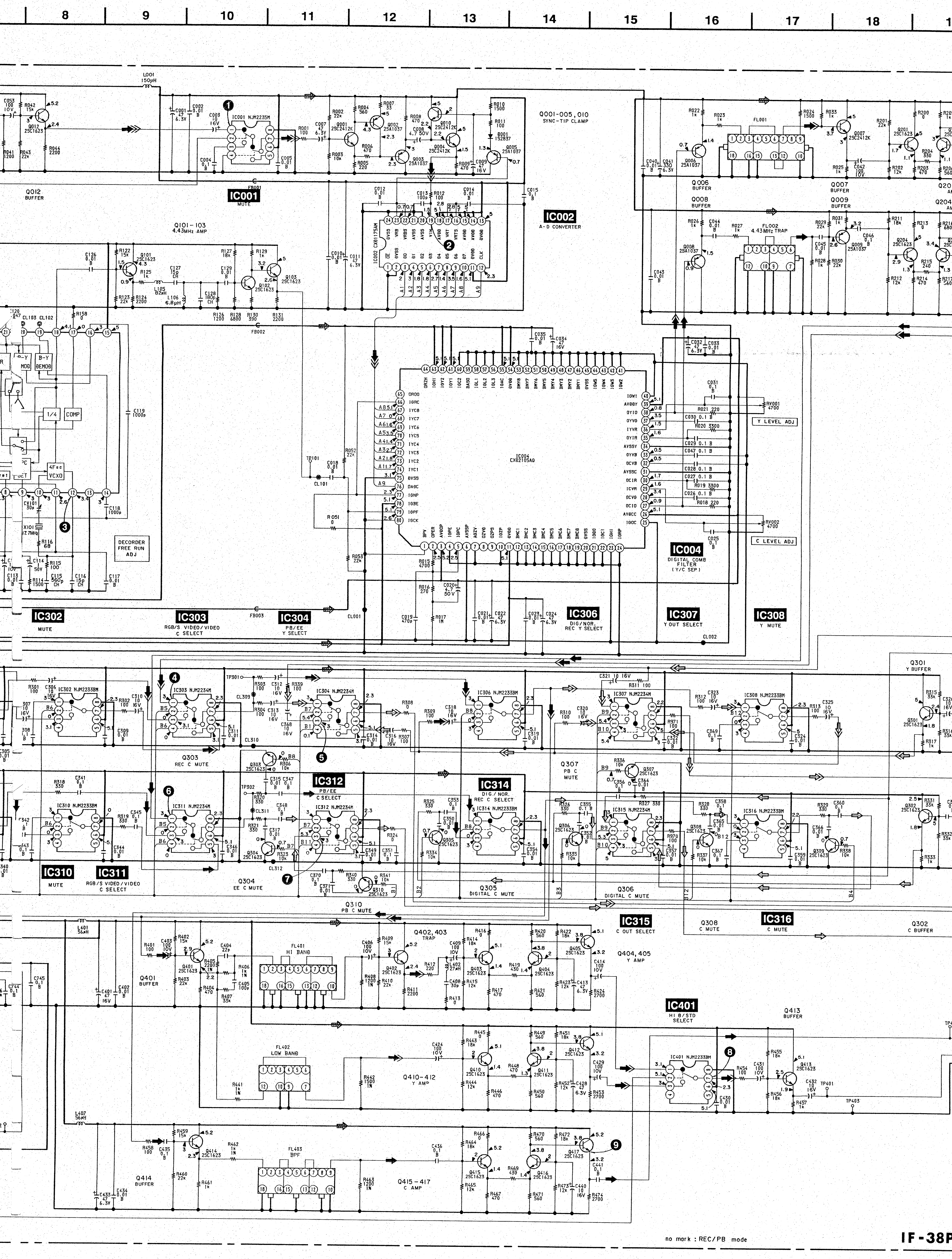
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
TO IF-38P(2/2)
V IN A
GND B
(See Page 174)
Q011 BUFFER
Q012 BUFFER
FL003 LPF
L001 150μH
IC001 NJM2235M
IC001 MUTE
Q107 BUFFER
Q101-103 4.43MHz AMP
IC101 APC
IC101 M51271FP
SYNC SEPA
COMP
ID KILLER DET
R-Y DEMOD
B-Y DEMOD
1/4
ID Pulse
Burst Gate
ACC DET
TINT
APC DET
Burst Gate Pulse
2nd AMP
1st AMP
Vref
4Fsc VCXO
X101 17.7MHz
DECORDER FREE RUN ADJ
(See Page 172, 174)
RGB Y IN C
GND B
RGB C IN D
GND B
Y IN E
GND B
C IN F
GND B
IC301 MUTE
IC302 MUTE
IC303 RGB/S VIDEO/VIDEO C SELECT
IC301 NJM2235M
IC302 NJM2233BM
IC303 NJM2234M
Q303 REC C MUTE
IC309 NJM2234M
IC310 NJM2233BM
IC311 NJM2234M
IC309 MUTE
IC310 MUTE
IC311 RGB/S VIDEO/VIDEO C SELECT
Q304 EE C MUTE
IC709 LM1881N
Q707 BUFFER
IC709 SYNC SEP.
Q401 BUFFER
Q414 BUFFER
SW1 AA
SW2 AB
SW3 AC
SW4 AD
S/LINE G
RGB H
SW1 I
SW2 J
SW3 K
SW4 L
F STILL M
VD N
EXT D/E O
HK Q
DIG 5V R
REG 5V S
MV MUTE AE
GND B
(See Page 172)
TP702
09


9
10
11
12
13
14
15
16
17
18
19
L001 150μH
IC001 NJM2235M
IC001 MUTE
Q001-005, 010 SYNC-TIP CLAMP
IC002 CX81175AM
IC002 A-D CONVERTER
Q101-103 4.43MHz AMP
Q006 BUFFER
Q008 BUFFER
Q007 BUFFER
Q009 BUFFER
FL001
FL002 4.43MHz TRAP
Q201-203 AMP
Q204-206 AMP
IC004 CXD2105AQ
IC004 DIGITAL COMB FILTER (Y/C SEP)
RV001 4700
Y LEVEL ADJ
RV002 4700
C LEVEL ADJ
DECORDER FREE RUN ADJ
COMP
IC303 RGB/S VIDEO/VIDEO C SELECT
IC304 PB/EE Y SELECT
IC306 DIG/NOR. REC Y SELECT
IC307 Y OUT SELECT
IC308 Y MUTE
Q301 Y BUFFER
IC302 NJM2233BM
IC303 NJM2234M
IC304 NJM2234M
IC306 NJM2233BM
IC307 NJM2234M
IC308 NJM2233BM
Q303 REC C MUTE
Q307 PB C MUTE
IC312 PB/EE C SELECT
IC314 DIG./NOR. REC C SELECT
IC310 NJM2233BM
IC311 NJM2234M
IC312 NJM2234M
IC314 NJM2233BM
IC315 NJM2234M
IC316 NJM2233BM
IC310 MUTE
IC311 RGB/S VIDEO/VIDEO C SELECT
Q304 EE C MUTE
Q310 PB C MUTE
Q305 DIGITAL C MUTE
Q306 DIGITAL C MUTE
IC315 C OUT SELECT
Q308 C MUTE
IC316 C MUTE
Q302 C BUFFER
L401 56μH
Q401 BUFFER
FL401 HI BAND
Q402, 403 TRAP
Q404, 405 Y AMP
IC401 HI 8/STD SELECT
IC401 NJM2233BM
Q413 BUFFER
FL402 LOW BAND
Q410-412 Y AMP
L407 56μH
Q414 BUFFER
FL403 BPF
Q415-417 C AMP
TP401
TP402
TP403

no mark : REC/PB mode

IF-38P BOA


8
9
10
11
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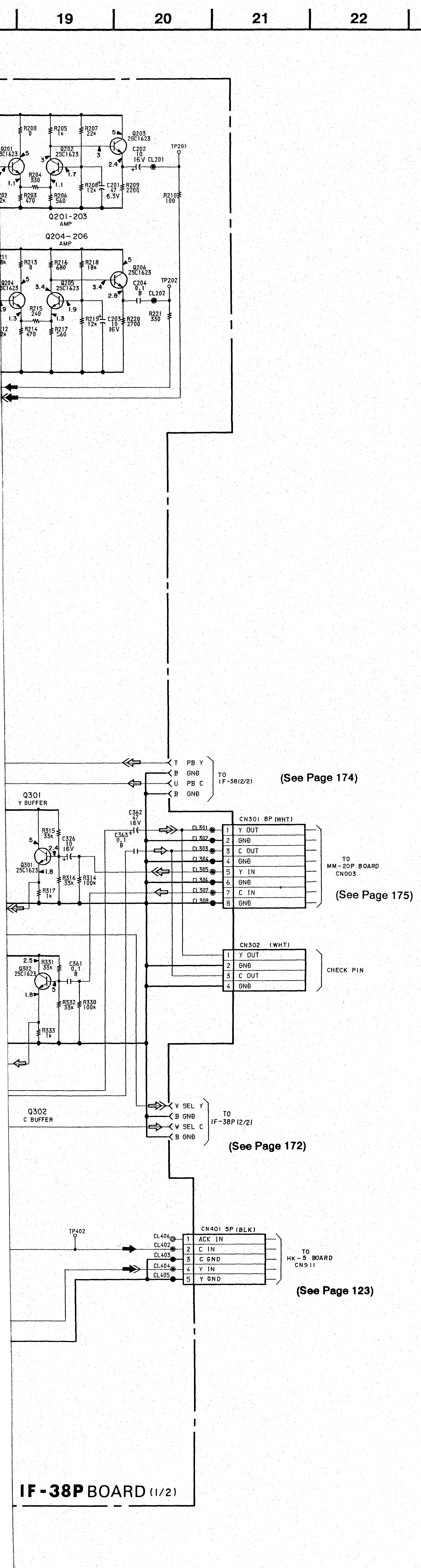
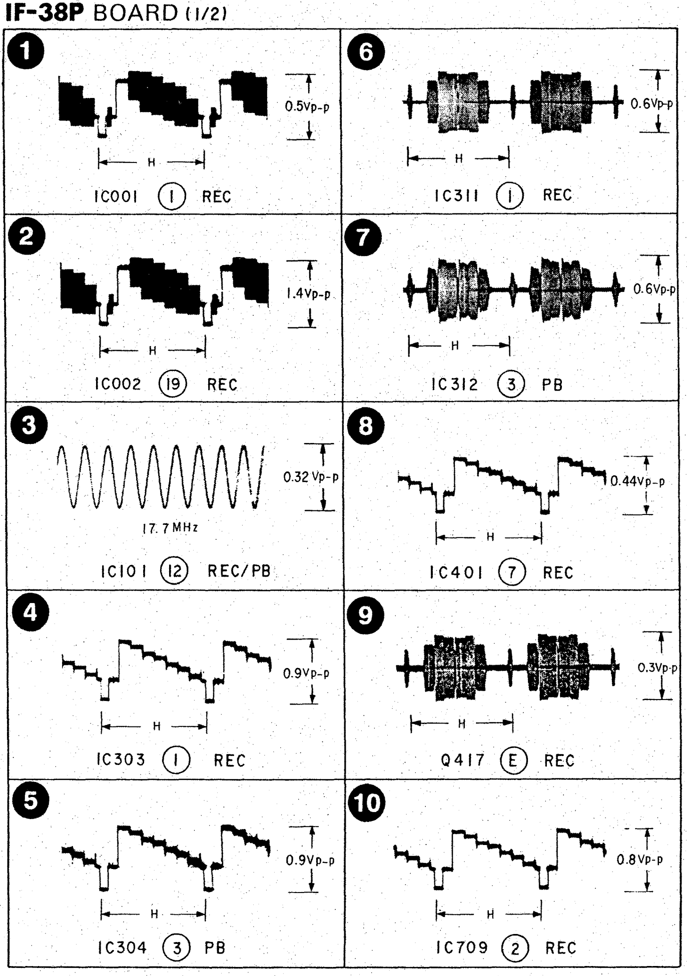
14
15
16
17
18
Q012 BUFFER
IC001 MUTE
IC001 NJM2235M
Q001-005, 010 SYNC-TIP CLAMP
IC002 A-D CONVERTER
IC002 CXD1175AM
Q006 BUFFER
Q007 BUFFER
Q008 BUFFER
Q009 BUFFER
FL001
FL002 4.43MHz TRAP
Q101-103 4.43MHz AMP
Q101 2SC1623
Q102 2SC1623
Q103 2SC1623
DECORDER FREE RUN ADJ
IC004 CXD2105AQ
IC004 DIGITAL COMB FILTER (Y/C SEP)
Y LEVEL ADJ
C LEVEL ADJ
IC302 MUTE
IC303 RGB/S VIDEO/VIDEO C SELECT
IC304 PB/EE Y SELECT
IC306 DIG/NOR. REC Y SELECT
IC307 Y OUT SELECT
IC308 Y MUTE
Q301 Y BUFFER
Q303 REC C MUTE
IC312 PB/EE C SELECT
IC314 DIG/NOR. REC C SELECT
Q307 PB C MUTE
IC310 MUTE
IC311 RGB/S VIDEO/VIDEO C SELECT
Q304 EE C MUTE
Q305 DIGITAL C MUTE
Q306 DIGITAL C MUTE
Q310 PB C MUTE
IC315 C OUT SELECT
Q308 C MUTE
IC316 C MUTE
Q302 C BUFFER
Q401 BUFFER
FL401 HI BAND
Q402, 403 TRAP
Q404, 405 Y AMP
IC401 HI 8/STD SELECT
IC401 NJM2233BM
Q413 BUFFER
FL402 LOW BAND
Q410-412 Y AMP
Q414 BUFFER
FL403 BPF
Q415-417 C AMP

no mark : REC/PB mode

IF-38P


19
20
21
22
23
24
25
26
27
R200 0
R205 1k
R207 22k
Q203 2SC1623
Q201 2SC1623
Q202 2SC1623
TP201
C202 10 16V
CL201
R204 330
R203 470
R206 560
R208 12k
C201 47 6.3V
R209 2200
R210 100
Q201-203 AMP
Q204-206 AMP
R213 0
R216 680
R218 18k
Q206 2SC1623
Q204 2SC1623
Q205 2SC1623
C204 0.1 B
TP202
CL202
R215 240
R214 470
R217 560
R219 12k
C203 10 16V
R220 2700
R221 330
T PB Y
B GND
U PB C
B GND
TO IF-38(2/2)
(See Page 174)
Q301 Y BUFFER
R315 33k
C326 10 16V
C362 47 16V
C363 0.1 B
Q301 2SC1623
R316 33k
R314 100k
R317 1k
CN301 8P (WHT)
1 Y OUT
2 GND
3 C OUT
4 GND
5 Y IN
6 GND
7 C IN
8 GND
CL301
CL302
CL303
CL304
CL305
CL306
CL307
CL308
TO MM-20P BOARD CN003
(See Page 175)
CN302 (WHT)
1 Y OUT
2 GND
3 C OUT
4 GND
CHECK PIN
Q302 2SC1623
R331 33k
C361 0.1 B
R332 33k
R330 100k
R333 1k
V SEL Y
B GND
W SEL C
B GND
TO IF-38P (2/2)
(See Page 172)
Q302 C BUFFER
TP402
CL406
CL402
CL403
CL404
CL405
CN401 5P (BLK)
1 ACK IN
2 C IN
3 C GND
4 Y IN
5 Y GND
TO HK-5 BOARD CN911
(See Page 123)
IF-38P BOARD (1/2)

IF-38P BOARD (1/2)

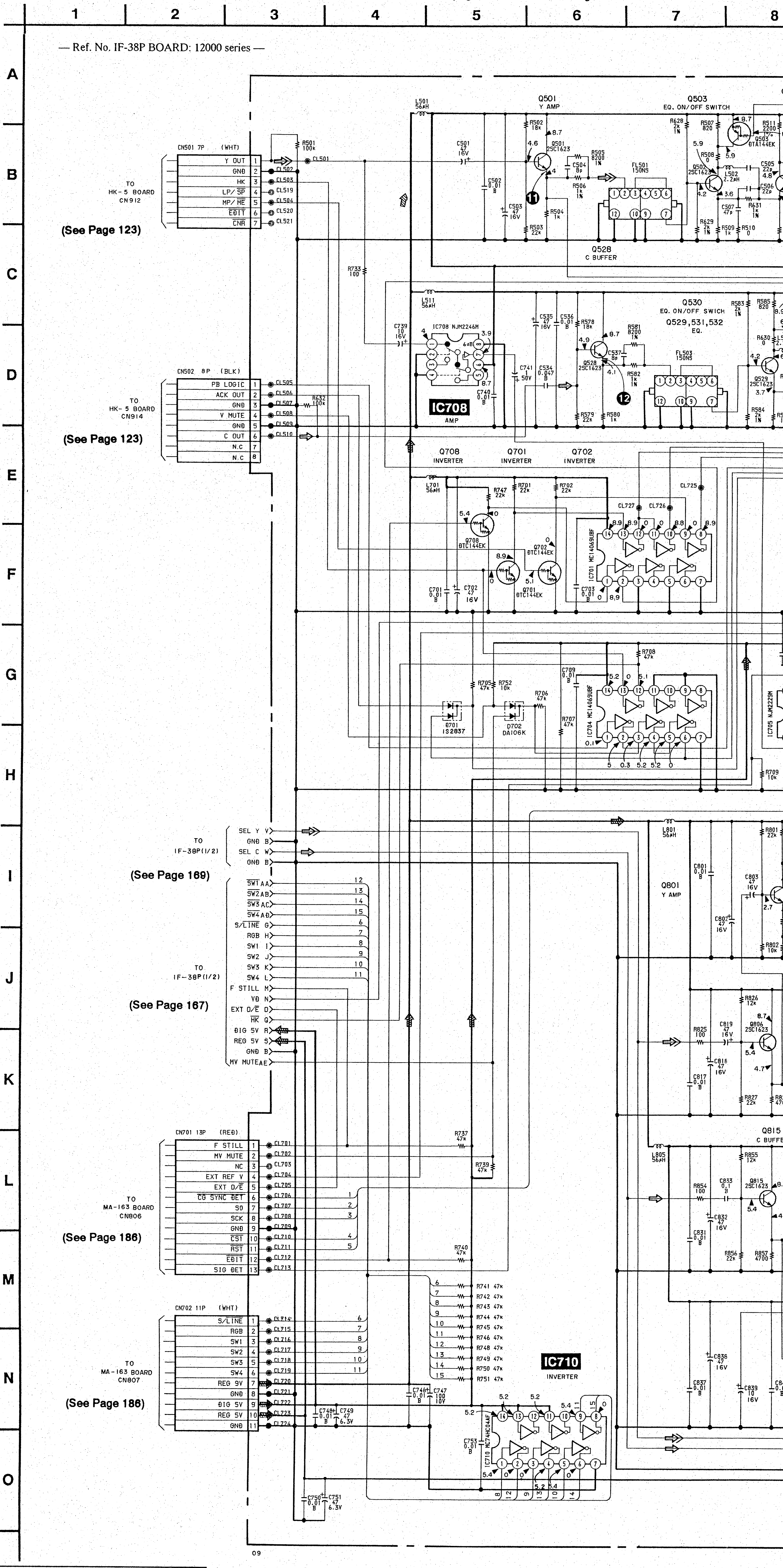


- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	
PB	⇨	⇨»		

IF-38P (VIDEO SIGNAL SELEC) SCHEMATIC DIAGRAM

• Refer to page 163 for Printed Wiring Board.


1
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A
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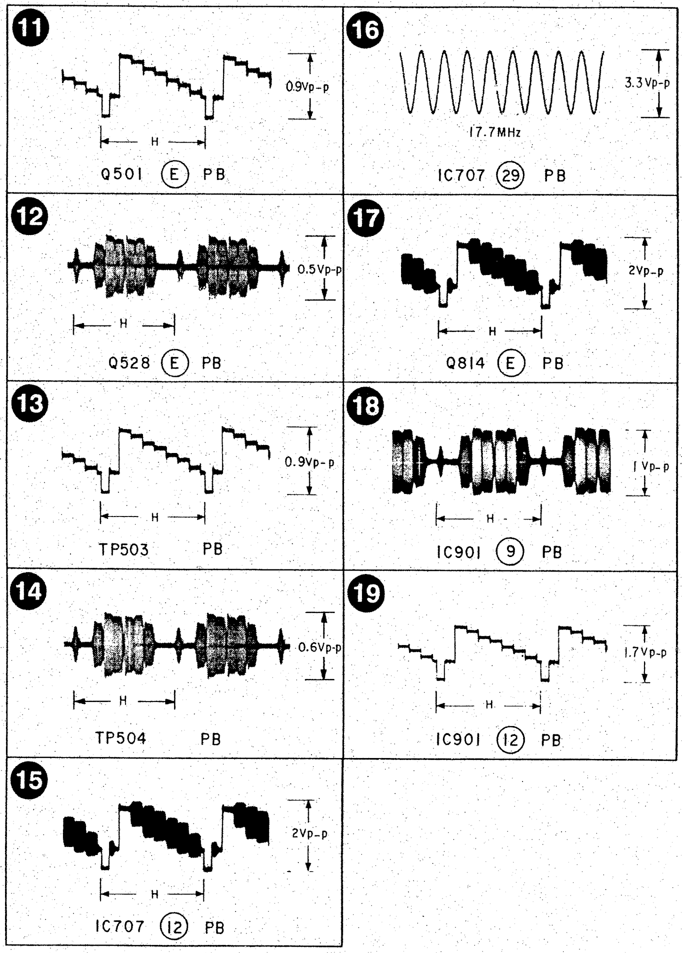
C
D
E
F
G
H
I
J
K
L
M
N
O
— Ref. No. IF-38P BOARD: 12000 series —
Q501 Y AMP
Q503 EQ. ON/OFF SWITCH
Q528 C BUFFER
Q530 EQ. ON/OFF SWICH
Q529,531,532 EQ.
IC708 AMP
IC708 NJM2246M
Q708 INVERTER
Q701 INVERTER
Q702 INVERTER
IC701 MC14069UBF
IC704 MC14069UBF
IC705 NJM2229M
D701 1S2837
D702 DA106K
Q801 Y AMP
Q815 C BUFFER
IC710 INVERTER
IC710 MC74HC04AF
CN501 7P (WHT)
Y OUT
GND
HK
LP/SP
MP/ME
EDIT
CNR
TO HK-5 BOARD CN912
(See Page 123)
CN502 8P (BLK)
PB LOGIC
ACK OUT
GND
V MUTE
GND
C OUT
N.C
N.C
TO HK-5 BOARD CN914
(See Page 123)
SEL Y
GND
SEL C
GND
TO IF-38P(1/2)
(See Page 169)
SW1
SW2
SW3
SW4
S/LINE
RGB
SW1
SW2
SW3
SW4
F STILL
VD
EXT O/E
HK
DIG 5V
REG 5V
GND
MV MUTE
TO IF-38P(1/2)
(See Page 167)
CN701 13P (RED)
F STILL
MV MUTE
NC
EXT REF V
EXT O/E
CG SYNC DET
SO
SCK
GND
CST
RST
EDIT
SIG DET
TO MA-163 BOARD CN806
(See Page 186)
CN702 11P (WHT)
S/LINE
RGB
SW1
SW2
SW3
SW4
REG 9V
GND
DIG 5V
REG 5V
GND
TO MA-163 BOARD CN807
(See Page 186)
09

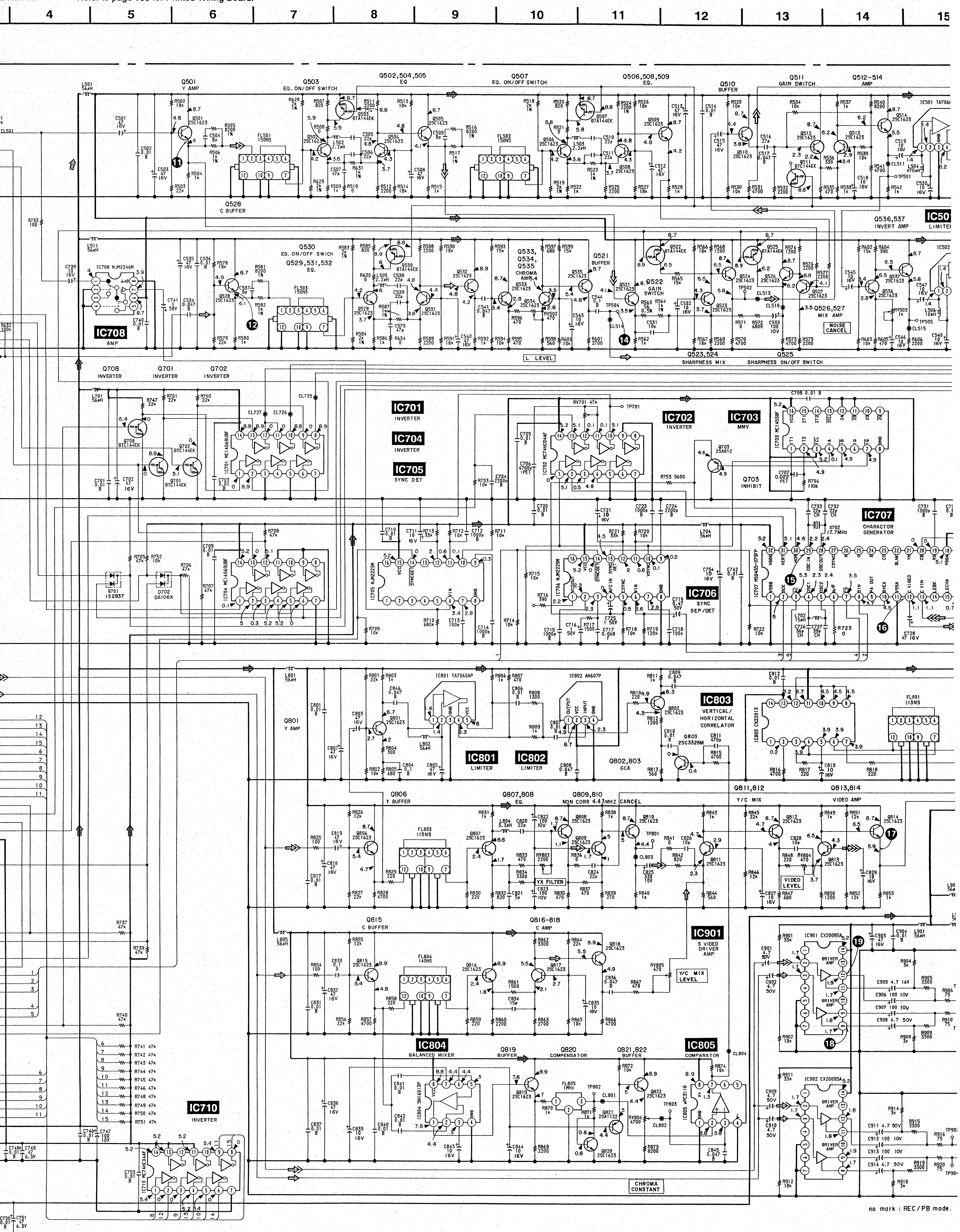
IF-38P BOARD (2/2)



• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡⟫	➡⟫⟫	
PB	⇨	⇨⟫	⇨⟫⟫	

IAGRAM • Refer to page 163 for Printed Wiring Board.


4
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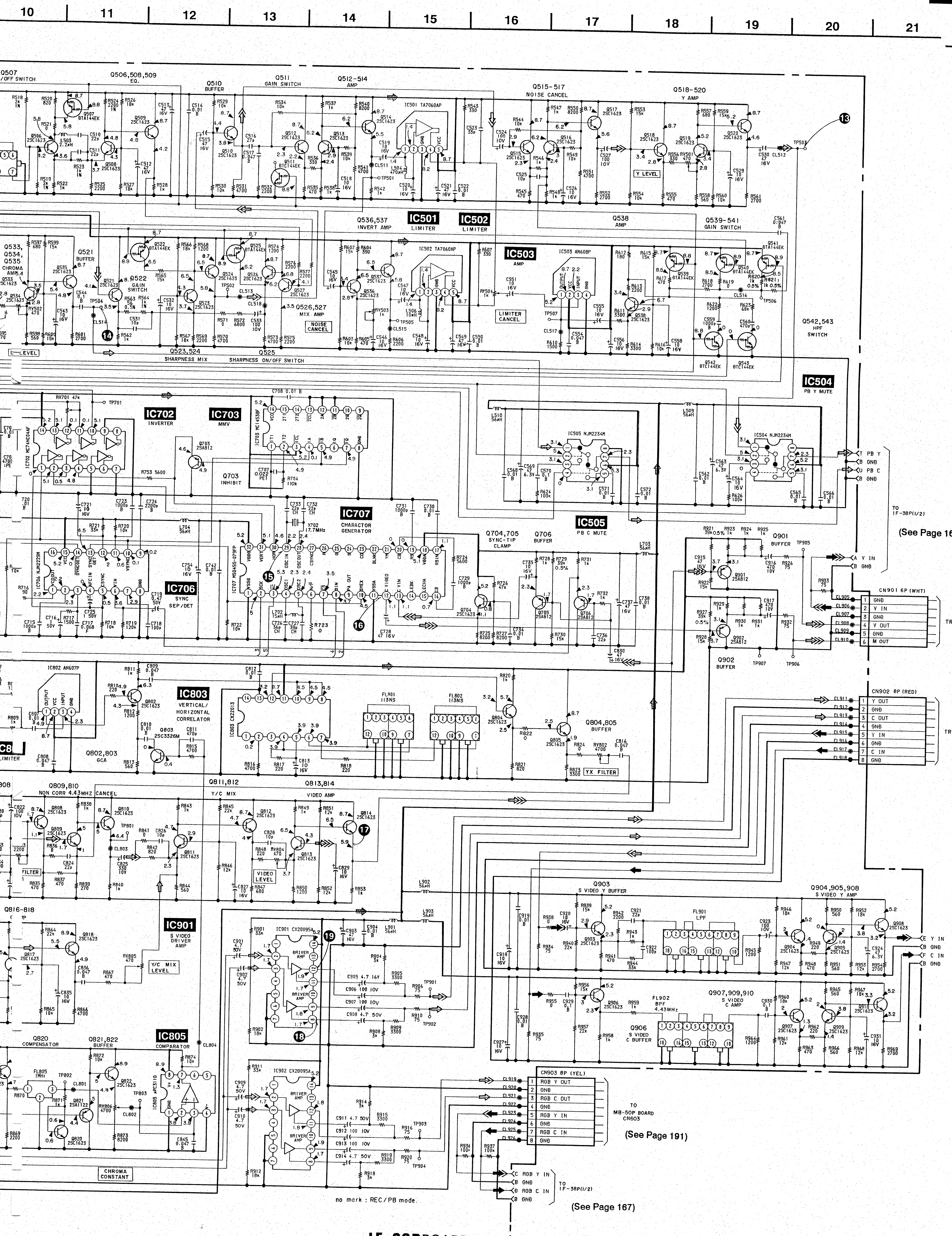
14
15
Q501 Y AMP
Q503 EQ. ON/OFF SWITCH
Q502,504,505 EQ
Q507 EQ. ON/OFF SWITCH
Q506,508,509 EQ.
Q510 BUFFER
Q511 GAIN SWITCH
Q512-514 AMP
IC501 TA7060
Q528 C BUFFER
Q536,537 INVERT AMP
IC501 LIMITER
Q530 EQ. ON/OFF SWICH
Q529,531,532 EQ.
Q533, Q534, Q535 CHROMA AMP
Q521 BUFFER
Q522 GAIN SWITCH
Q526,527 MIX AMP
NOISE CANCEL
L LEVEL
Q523,524 SHARPNESS MIX
Q525 SHARPNESS ON/OFF SWITCH
IC708 NJM2246M
IC708 AMP
Q708 INVERTER
Q701 INVERTER
Q702 INVERTER
IC701 INVERTER
IC704 INVERTER
IC705 SYNC DET
IC702 INVERTER
IC703 MMV
Q703 INHIBIT
IC707 CHARACTOR GENERATOR
IC706 SYNC SEP/DET
D701 1S2837
D702 DA106K
IC801 TA7060AP
IC802 AN607P
Q801 Y AMP
IC801 LIMITER
IC802 LIMITER
Q802,803 GCA
IC803 VERTICAL/ HORIZONTAL CORRELATOR
FL801 113NS
Q806 Y BUFFER
Q807,808 EQ.
Q809,810 NON CORR 4.43MHZ CANCEL
Q811,812 Y/C MIX
Q813,814 VIDEO AMP
YX FILTER
VIDEO LEVEL
Q815 C BUFFER
Q816-818 C AMP
IC901 S VIDEO DRIVER AMP
Y/C MIX LEVEL
IC901 CX20095A
DRIVER AMP
IC804 BALANCED MIXER
Q819 BUFFER
Q820 COMPENSATOR
Q821,822 BUFFER
IC805 COMPARATOR
IC902 CX20095A
CHROMA CONSTANT
IC710 INVERTER

no mark : REC/PB mode.

IF-38P


10
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16
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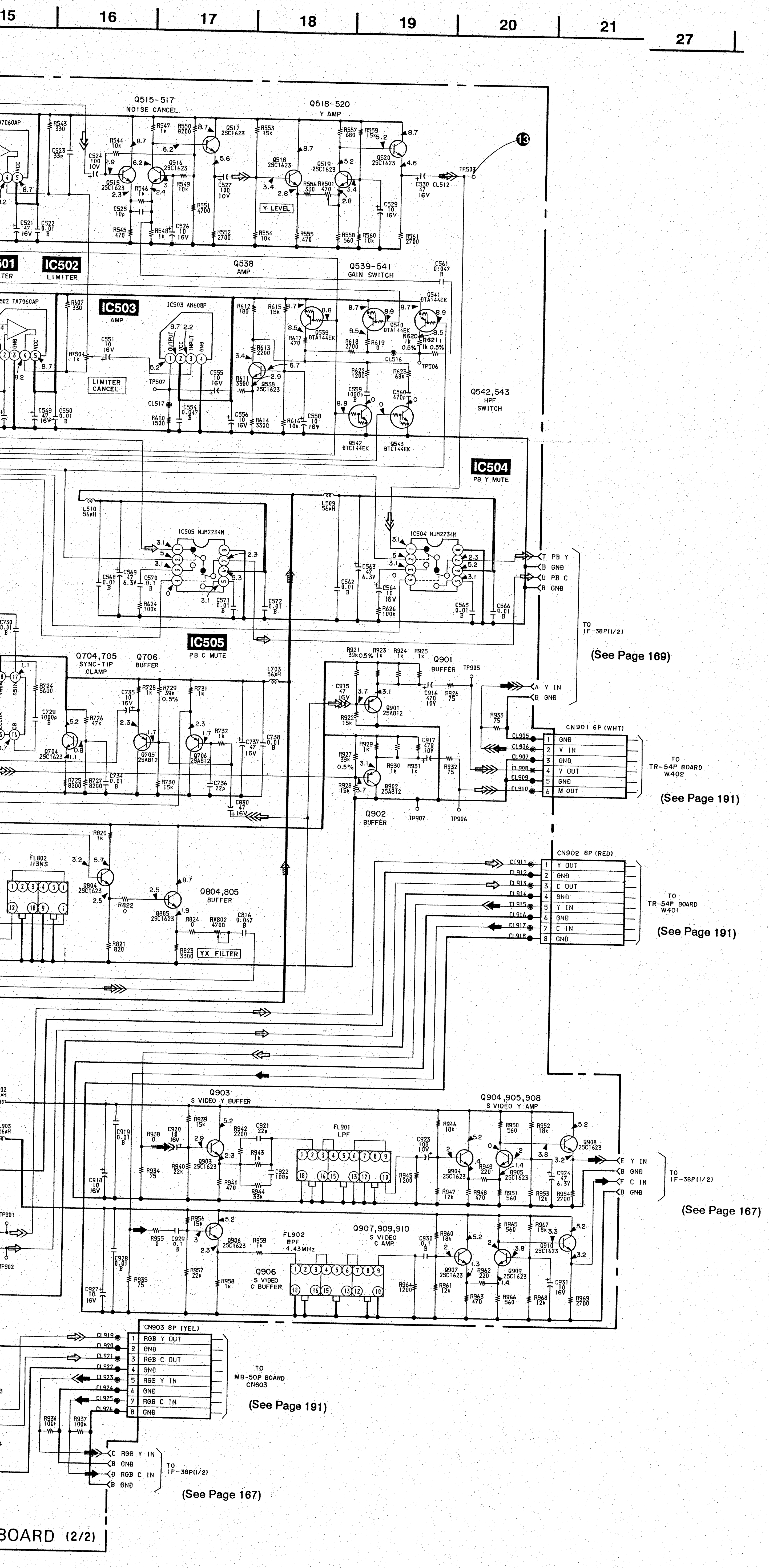
18
19
20
21
Q507 ON/OFF SWITCH
Q506,508,509 EQ.
Q510 BUFFER
Q511 GAIN SWITCH
Q512-514 AMP
IC501 TA7060AP
Q515-517 NOISE CANCEL
Q518-520 Y AMP
Y LEVEL
TP503
13
Q533, Q534, Q535 CHROMA AMP
Q521 BUFFER
Q522 GAIN SWITCH
Q526,527 MIX AMP
NOISE CANCEL
14
LEVEL
Q523,524 SHARPNESS MIX
Q525 SHARPNESS ON/OFF SWITCH
Q536,537 INVERT AMP
IC501 LIMITER
IC502 LIMITER
IC502 TA7060AP
Q538 AMP
IC503 AMP
IC503 AN608P
LIMITER CANCEL
Q539-541 GAIN SWITCH
Q542,543 HPF SWITCH
IC504 PB Y MUTE
IC505 NJM2234M
IC504 NJM2234M
IC505 PB C MUTE
TP701
IC702 INVERTER
IC703 MMV
IC702 MC74HC04AF
IC703 MC14538F
Q703 INHIBIT
IC707 CHARACTOR GENERATOR
IC707 M50455-079FP
X702 17.7MHz
15
16
IC706 SYNC SEP/DET
IC706 NJM2229M
Q704,705 SYNC-TIP CLAMP
Q706 BUFFER
T PB Y
B GND
U PB C
B GND
TO IF-38P(1/2)
(See Page 167)
Q901 BUFFER
TP905
A V IN
B GND
CN901 6P (WHT)
1 GND
2 V IN
3 GND
4 V OUT
5 GND
6 M OUT
Q902 BUFFER
TP907
TP906
IC802 AN607P
IC803 VERTICAL/HORIZONTAL CORRELATOR
IC803 CX22013
FL801 1I3NS
FL802 1I3NS
Q804,805 BUFFER
YX FILTER
CN902 8P (RED)
1 Y OUT
2 GND
3 C OUT
4 GND
5 Y IN
6 GND
7 C IN
8 GND
IC8 LIMITER
Q802,803 GCA
Q809,810 NON CORR 4.43MHZ CANCEL
Q811,812 Y/C MIX
Q813,814 VIDEO AMP
VIDEO LEVEL
17
FILTER
Q816-818 AMP
IC901 S VIDEO DRIVER AMP
Y/C MIX LEVEL
IC901 CX20095A
19
18
Q903 S VIDEO Y BUFFER
FL901 LPF
Q904,905,908 S VIDEO Y AMP
E Y IN
B GND
F C IN
B GND
FL902 BPF 4.43MHz
Q906 S VIDEO C BUFFER
Q907,909,910 S VIDEO C AMP
Q820 COMPENSATOR
Q821,822 BUFFER
IC805 COMPARATOR
IC805 μPC311G
FL805 1MHz
CL804
CHROMA CONSTANT
IC902 CX20095A
CN903 8P (YEL)
1 RGB Y OUT
2 GND
3 RGB C OUT
4 GND
5 RGB Y IN
6 GND
7 RGB C IN
8 GND
TO MB-50P BOARD CN603
(See Page 191)
C RGB Y IN
B GND
D RGB C IN
B GND
TO IF-38P(1/2)
(See Page 167)

no mark : REC/PB mode.

IF-38PBOARD (2/2)

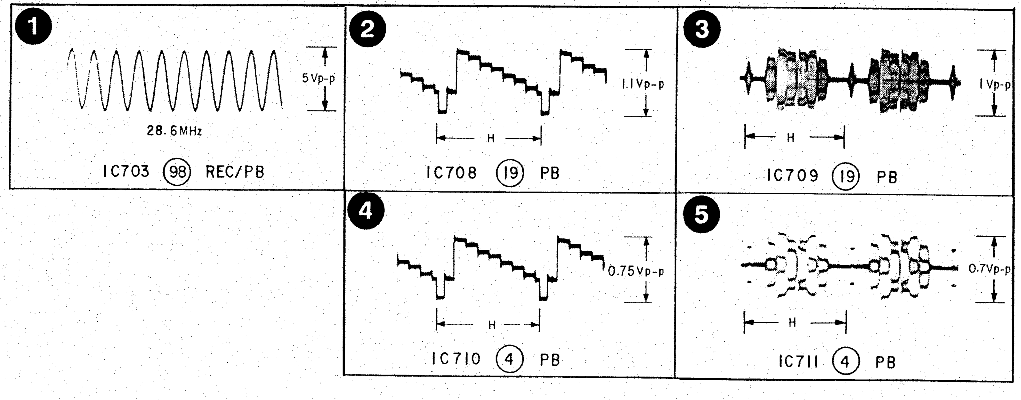

15
16
17
18
19
20
21
27
Q515–517
NOISE CANCEL
Q518–520
Y AMP
Y LEVEL
TP503
CL512
IC502
LIMITER
Q538
AMP
Q539–541
GAIN SWITCH
IC503
AMP
IC503 AN608P
LIMITER CANCEL
TP507
CL517
CL516
TP506
Q542,543
HPF
SWITCH
IC504
PB Y MUTE
IC505 NJM2234M
IC504 NJM2234M
IC505
PB C MUTE
PB Y
GND
PB C
GND
TO
IF-38P(1/2)
(See Page 169)
Q704,705
SYNC-TIP
CLAMP
Q706
BUFFER
Q901
BUFFER
TP905
A V IN
B GND
CN901 6P (WHT)
1 GND
2 V IN
3 GND
4 Y OUT
5 GND
6 M OUT
TO
TR-54P BOARD
W402
(See Page 191)
Q902
BUFFER
TP907
TP906
FL802
113NS
Q804,805
BUFFER
YX FILTER
CN902 8P (RED)
1 Y OUT
2 GND
3 C OUT
4 GND
5 Y IN
6 GND
7 C IN
8 GND
TO
TR-54P BOARD
W401
(See Page 191)
Q903
S VIDEO Y BUFFER
FL901
LPF
Q904,905,908
S VIDEO Y AMP
E Y IN
B GND
F C IN
B GND
TO
IF-38P(1/2)
(See Page 167)
FL902
BPF
4.43MHz
Q906
S VIDEO
C BUFFER
Q907,909,910
S VIDEO
C AMP
CN903 8P (YEL)
1 RGB Y OUT
2 GND
3 RGB C OUT
4 GND
5 RGB Y IN
6 GND
7 RGB C IN
8 GND
TO
MB-50P BOARD
CN603
(See Page 191)
C RGB Y IN
B GND
D RGB C IN
B GND
TO
IF-38P(1/2)
(See Page 167)

BOARD (2/2)

OUT

VIDEO IN/OUT

MM-20P BOARD



- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫		
PB	⇨	⇨≫		

(DIODE)

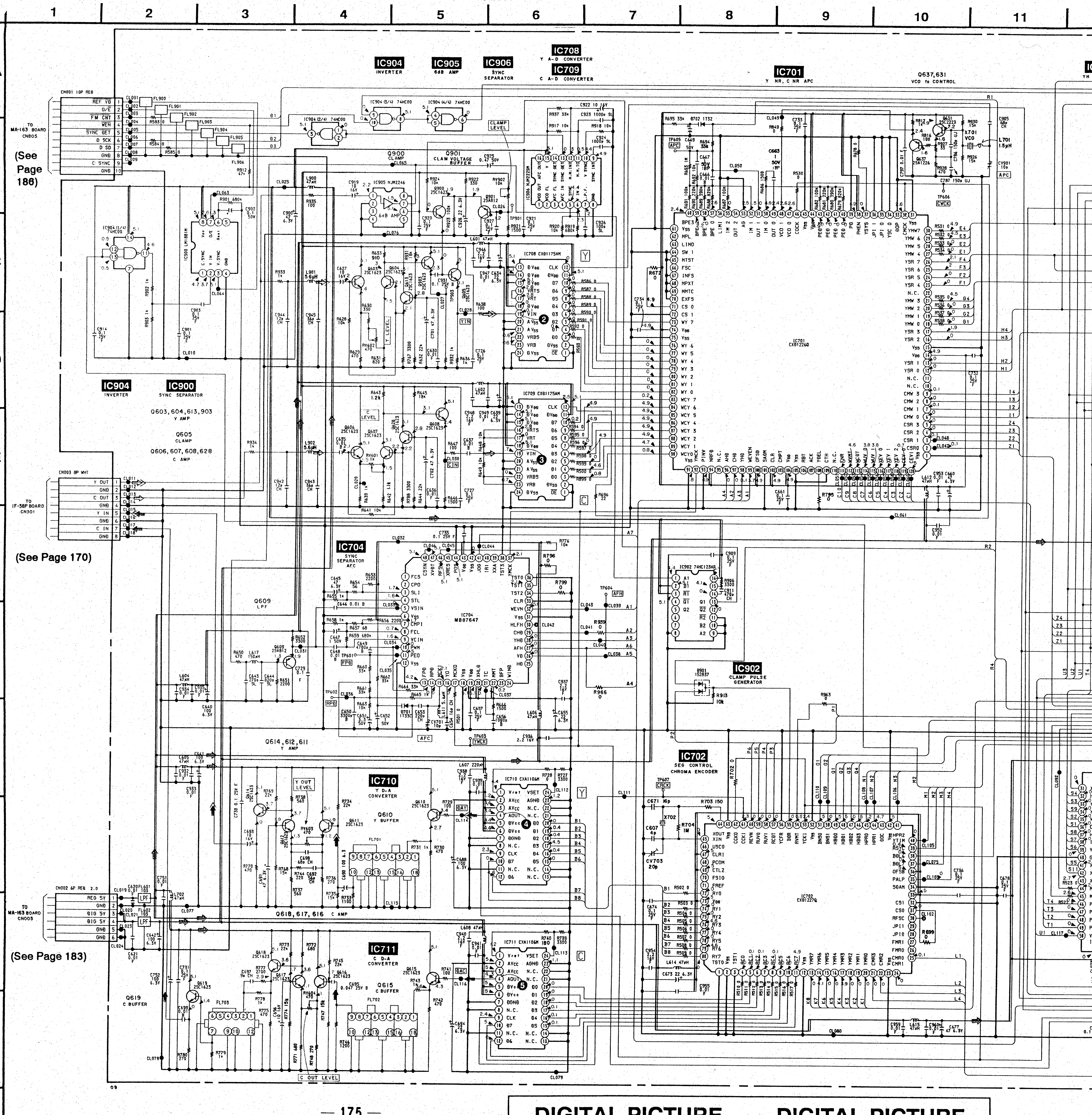
D701	8-713-300-88	DIODE	1T33C-0
D702	8-719-949-46	DIODE	1T32
D901	8-719-400-18	DIODE	MA152WK

(IC)

IC701	8-759-987-17	IC	CXD1226Q
IC702	8-759-987-18	IC	CXD1227Q
IC703	8-759-046-43	IC	CXD2108AQ
IC704	8-759-072-23	IC	MB87647
IC705	8-752-340-75	IC	CXK1206AM
IC706	8-752-340-75	IC	CXK1206AM
IC707	8-752-340-75	IC	CXK1206AM
IC708	8-752-334-55	IC	CXD1175AM
IC709	8-752-334-55	IC	CXD1175AM
IC710	8-752-032-96	IC	CXA1106M
IC711	8-752-032-96	IC	CXA1106M
IC801	8-759-925-74	IC	SN74HC04AN
IC805	8-752-340-75	IC	CXK1206AM
IC806	8-752-340-75	IC	CXK1206AM
IC807	8-752-340-75	IC	CXK1206AM
IC900	8-759-987-27	IC	LM1881M
IC902	8-759-206-28	IC	TC74HC123F
IC904	8-759-927-46	IC	SN74HC00AN
IC905	8-759-710-62	IC	NJM2246M
IC906	8-759-710-61	IC	NJM2229M

MM-20P (DIGITAL PICTURE) SCHEMATIC DIAGRAM

— Ref. No. MM-20P BOARD: 10000 series —



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A
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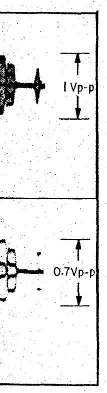
I
J
K
IC904 INVERTER
IC905 6dB AMP
IC906 SYNC SEPARATOR
IC708 Y A-D CONVERTER
IC709 C A-D CONVERTER
IC701 Y NR, C NR APC
Q637,631 VCO to CONTROL
CN001 10P REB
REF VD
D/E
FM CNT
WEN
SYNC DET
D SCK
D SD
GND
C SYNC
GND
TO MA-163 BOARD CN805
(See Page 186)
IC904 INVERTER
IC900 SYNC SEPARATOR
Q603,604,613,903 Y AMP
Q605 CLAMP
Q606,607,608,628 C AMP
Q900 CLAMP
Q901 CLAMP VOLTAGE BUFFER
CLAMP LEVEL
Y LEVEL
C LEVEL
IC708 CXD1175AM
IC709 CXD1175AM
IC701 CXD1226Q
CN003 8P WHT
Y OUT
GND
C OUT
GND
Y IN
GND
C IN
GND
TO IF-38P BOARD CN501
(See Page 170)
IC704 SYNC SEPARATOR AFC
IC704 MB87647
Q609 LPF
IC902 CLAMP PULSE GENERATOR
IC902 74HC123A
Q614,612,611 Y AMP
IC710 Y D-A CONVERTER
Q610 Y BUFFER
Y OUT LEVEL
IC710 CXA1106M
IC702 SEG CONTROL CHROMA ENCODER
IC702 CXD1227Q
Q618,617,616 C AMP
IC711 C D-A CONVERTER
Q615 C BUFFER
IC711 CXA1106M
Q619 C BUFFER
C OUT LEVEL
CN002 6P REG 2.0
REG 5V
GND
DIG 5V
DIG 5V
GND
GND
TO MA-163 BOARD CN003
(See Page 183)



(DIODE)

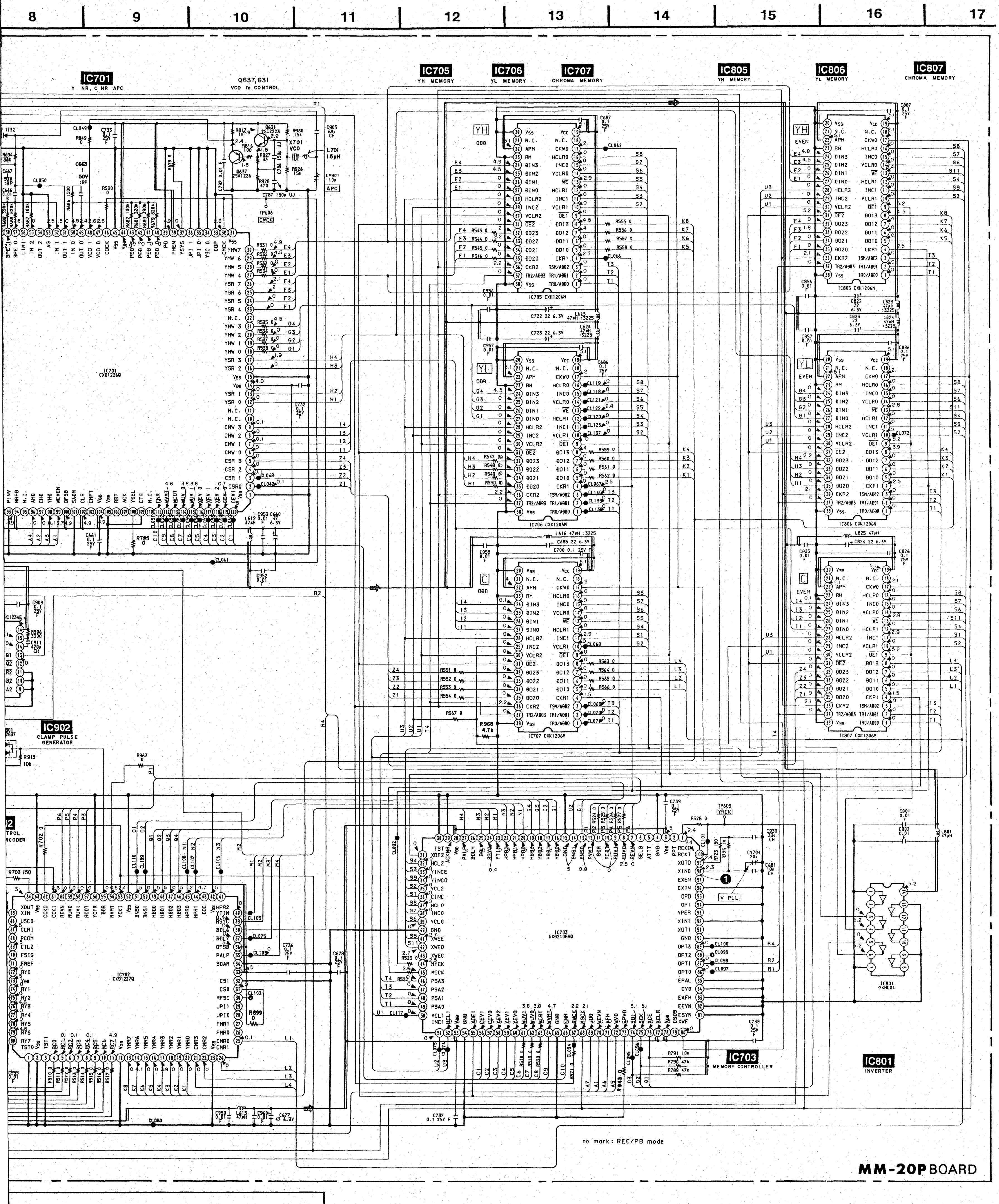
D701	8-713-300-88	DIODE	1T33C-01
D702	8-719-949-46	DIODE	1T32
D901	8-719-400-18	DIODE	MA152WK

(IC)

IC701	8-759-987-17	IC	CXD1226Q
IC702	8-759-987-18	IC	CXD1227Q
IC703	8-759-046-43	IC	CXD2108AQ
IC704	8-759-072-23	IC	MB87647
IC705	8-752-340-75	IC	CXK1206AM
IC706	8-752-340-75	IC	CXK1206AM
IC707	8-752-340-75	IC	CXK1206AM
IC708	8-752-334-55	IC	CXD1175AM
IC709	8-752-334-55	IC	CXD1175AM
IC710	8-752-032-96	IC	CXA1106M
IC711	8-752-032-96	IC	CXA1106M
IC801	8-759-925-74	IC	SN74HC04ANS
IC805	8-752-340-75	IC	CXK1206AM
IC806	8-752-340-75	IC	CXK1206AM
IC807	8-752-340-75	IC	CXK1206AM
IC900	8-759-987-27	IC	LM1881M
IC902	8-759-206-28	IC	TC74HC123F
IC904	8-759-927-46	IC	SN74HC00ANS
IC905	8-759-710-62	IC	NJM2246M
IC906	8-759-710-61	IC	NJM2229M

(TRANSISTOR)

Q603	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q604	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q605	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q606	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q607	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q608	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q609	8-729-216-22	TRANSISTOR	2SA1162-G
Q610	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q611	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q612	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q613	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q614	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q615	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q616	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q617	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q618	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q619	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q628	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q631	8-729-102-08	TRANSISTOR	2SC2223-F14
Q637	8-729-122-63	TRANSISTOR	2SA1226-E4
Q900	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q901	8-729-216-22	TRANSISTOR	2SA1162-G
Q903	8-729-120-28	TRANSISTOR	2SC1623-L5L6


8
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IC701
Y NR, C NR APC
Q637,631
VCO to CONTROL
IC705
YH MEMORY
IC706
YL MEMORY
IC707
CHROMA MEMORY
IC805
YH MEMORY
IC806
YL MEMORY
IC807
CHROMA MEMORY
IC902
CLAMP PULSE GENERATOR
IC703
MEMORY CONTROLLER
IC801
INVERTER
no mark : REC/PB mode
MM-20P BOARD

MM-20P (DIGITAL PICTURE) PRINTED WIRING BOARD

— Ref. No. MM-20P BOARD: 10000 series —

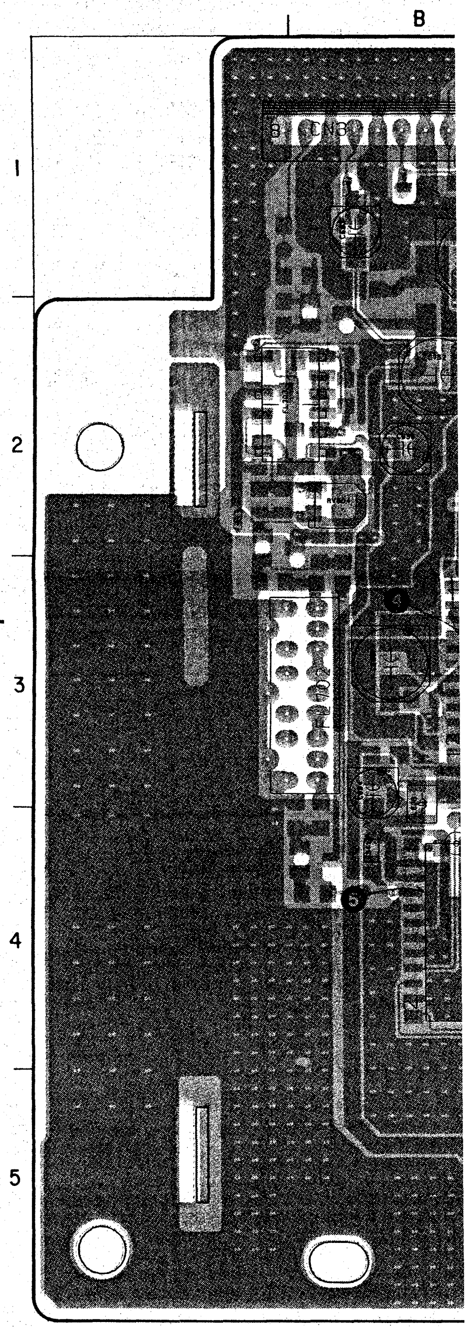
MM-20P BOARD (CONDUCTOR SIDE)

IC705	G-3
IC706	E-6
IC707	D-4
IC807	F-5
Q603	I-3
Q604	I-3
Q605	I-2
Q606	H-2
Q607	H-2
Q608	H-2
Q609	J-3
Q610	B-2
Q611	D-2
Q613	I-3
Q615	B-4
Q616	A-2
Q617	A-2
Q618	A-2
Q619	B-2
Q628	H-2
Q631	I-4
Q637	H-4
Q900	I-2
Q901	I-2

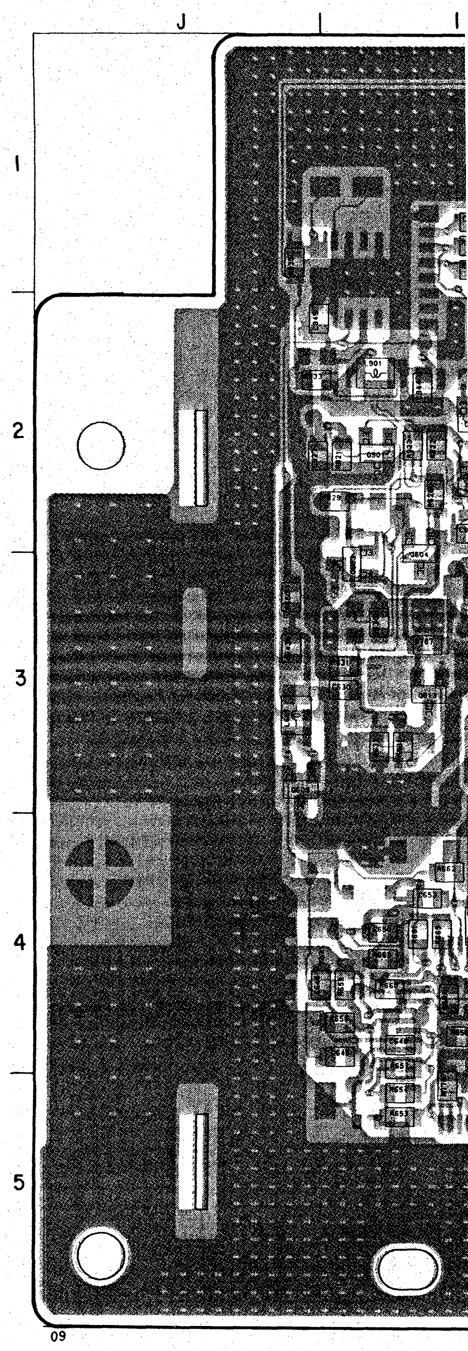
MM-20P BOARD (COMPONENT SIDE)

D701	I-4
D702	I-4
D901	D-2
IC701	G-3
IC702	C-3
IC703	E-3
IC704	I-4
IC708	H-2
IC709	G-2
IC710	B-3
IC711	B-4
IC801	C-5
IC805	F-5
IC806	D-5
IC900	E-2
IC902	F-1
IC904	E-1
IC905	I-1
IC906	I-1
Q612	C-2
Q614	C-2
Q903	I-2

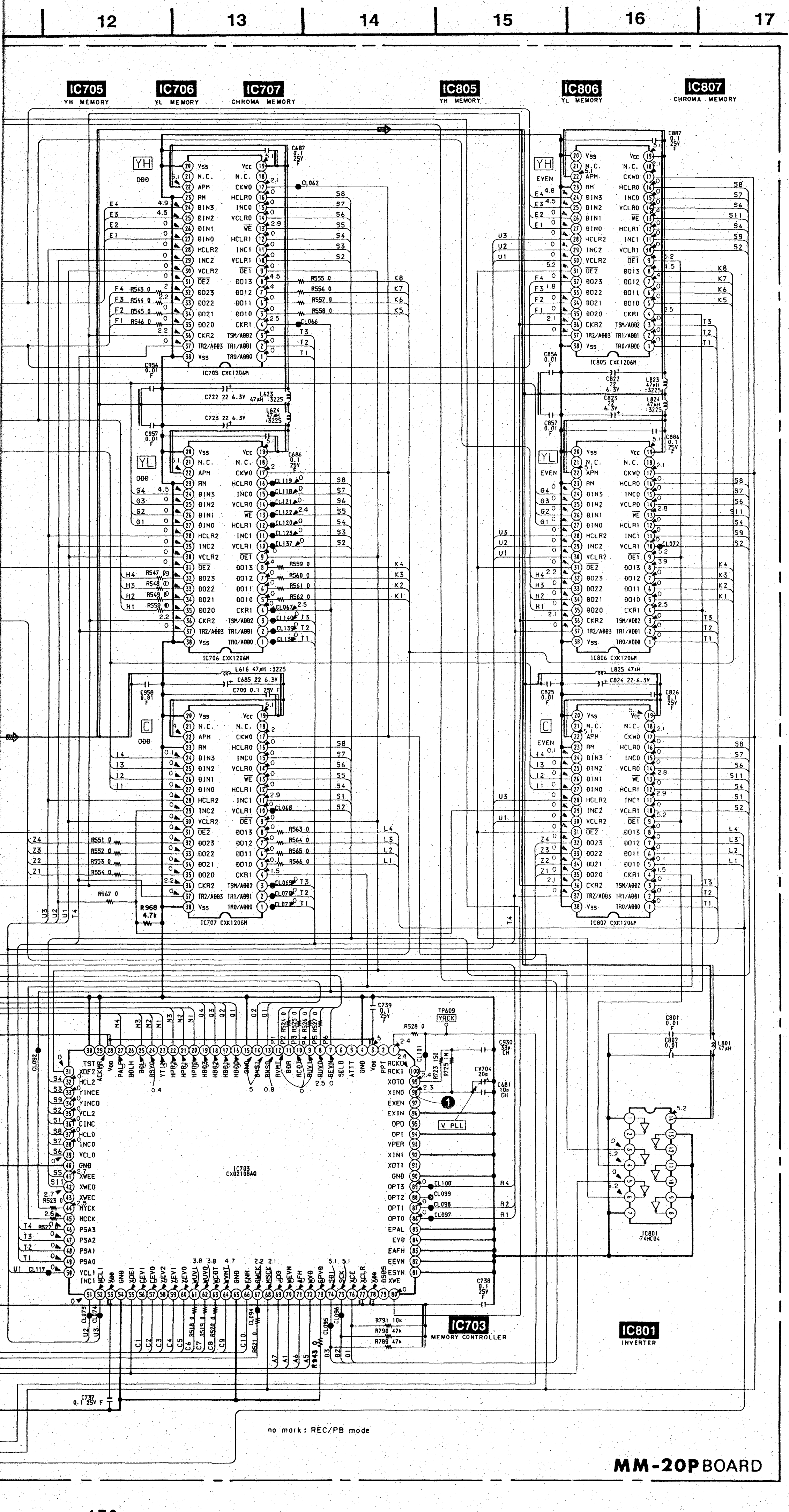
MM - 20P BOARD (COMPONENT SIDE)



MM - 20P BOARD (CONDUCTOR SIDE)



DE)		(TRANSISTOR)		
1T33C-01	Q603	8-729-120-28	TRANSISTOR	2SC1623-L5L6
1T32	Q604	8-729-120-28	TRANSISTOR	2SC1623-L5L6
MA152WK	Q605	8-729-120-28	TRANSISTOR	2SC1623-L5L6
	Q606	8-729-120-28	TRANSISTOR	2SC1623-L5L6
)	Q607	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXD1226Q	Q608	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXD1227Q	Q609	8-729-216-22	TRANSISTOR	2SA1162-G
CXD2108AQ	Q610	8-729-120-28	TRANSISTOR	2SC1623-L5L6
MB87647	Q611	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXK1206AM	Q612	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXK1206AM	Q613	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXK1206AM	Q614	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXD1175AM	Q615	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXD1175AM	Q616	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXA1106M	Q617	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXA1106M	Q618	8-729-120-28	TRANSISTOR	2SC1623-L5L6
SN74HC04ANS	Q619	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXK1206AM	Q628	8-729-120-28	TRANSISTOR	2SC1623-L5L6
CXK1206AM	Q631	8-729-102-08	TRANSISTOR	2SC2223-F14
CXK1206AM	Q637	8-729-122-63	TRANSISTOR	2SA1226-E4
LM1881M				
TC74HC123F	Q900	8-729-120-28	TRANSISTOR	2SC1623-L5L6
SN74HC00ANS	Q901	8-729-216-22	TRANSISTOR	2SA1162-G
NJM2246M	Q903	8-729-120-28	TRANSISTOR	2SC1623-L5L6
NJM2229M				


12
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17
IC705 YH MEMORY
IC706 YL MEMORY
IC707 CHROMA MEMORY
IC805 YH MEMORY
IC806 YL MEMORY
IC807 CHROMA MEMORY
IC705 CXK1206M
IC704 CXK1206M
IC707 CXK1206M
IC805 CXK1206M
IC806 CXK1206M
IC807 CXK1206P
IC703 CXD2108AQ
IC703 MEMORY CONTROLLER
IC801 74HC04
IC801 INVERTER
TP609 (VRCK)
V PLL
no mark : REC/PB mode
MM-20P BOARD

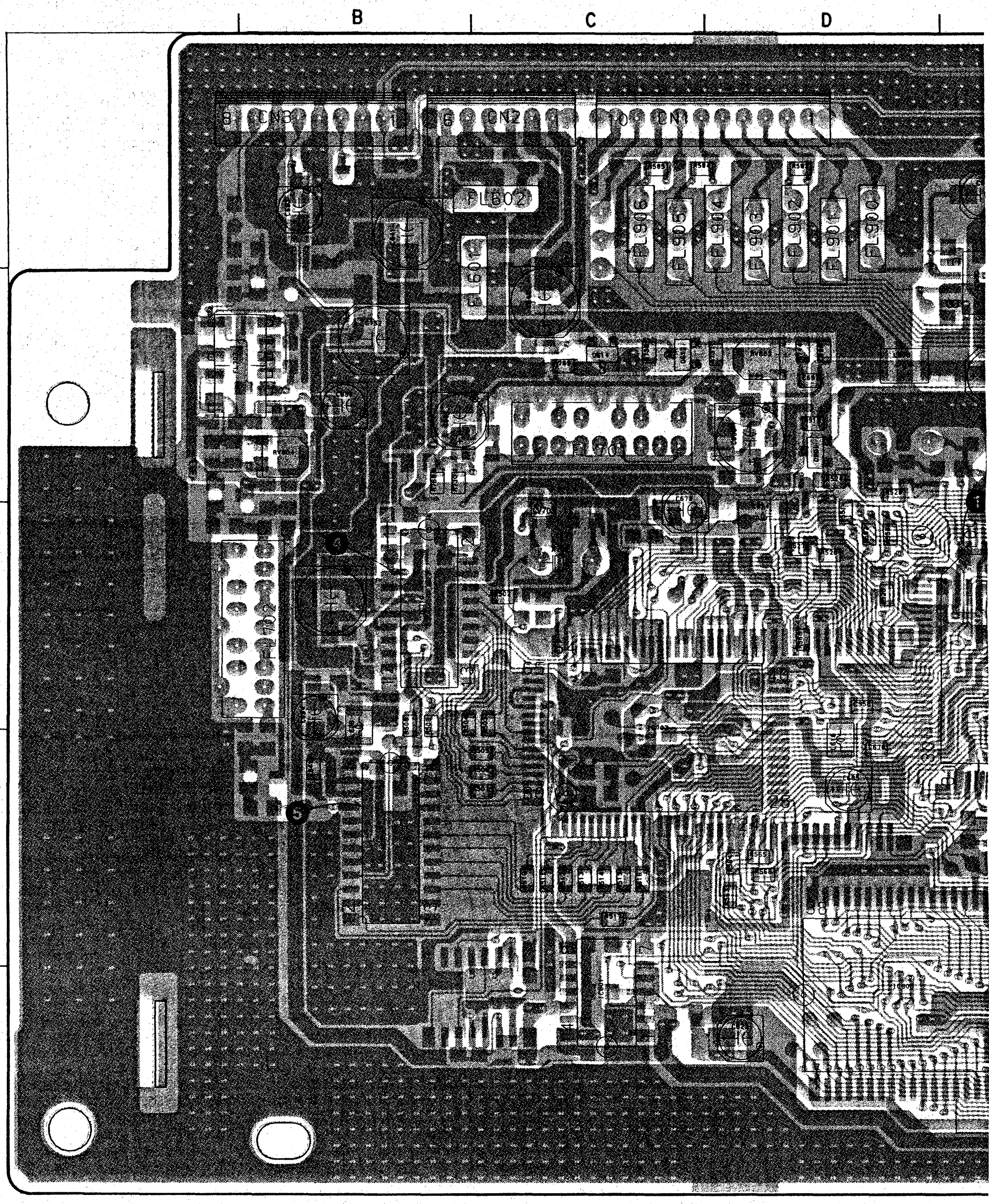
MM-20P (DIGITAL PICTURE) PRINTED WIRING BOARD

— Ref. No. MM-20P BOARD: 10000 series —

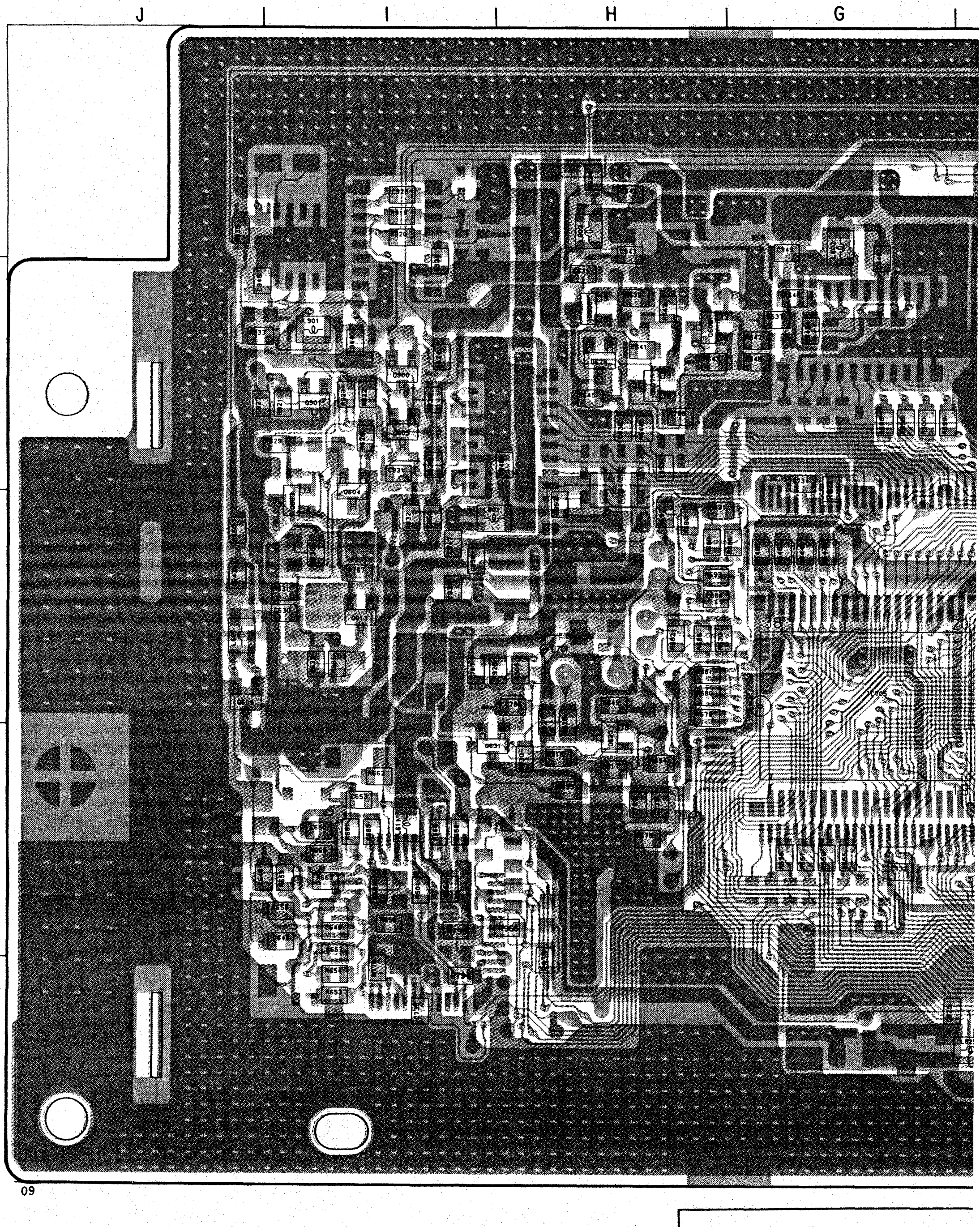
MM-20P BOARD (CONDUCTOR SIDE)	
IC705	G-3
IC706	E-6
IC707	D-4
IC807	F-5
Q603	I-3
Q604	I-3
Q605	I-2
Q606	H-2
Q607	H-2
Q608	H-2
Q609	J-3
Q610	B-2
Q611	D-2
Q613	I-3
Q615	B-4
Q616	A-2
Q617	A-2
Q618	A-2
Q619	B-2
Q628	H-2
Q631	I-4
Q637	H-4
Q900	I-2
Q901	I-2

MM-20P BOARD (COMPONENT SIDE)	
D701	I-4
D702	I-4
D901	D-2
IC701	G-3
IC702	C-3
IC703	E-3
IC704	I-4
IC708	H-2
IC709	G-2
IC710	B-3
IC711	B-4
IC801	C-5
IC805	F-5
IC806	D-5
IC900	E-2
IC902	F-1
IC904	E-1
IC905	I-1
IC906	I-1
Q612	C-2
Q614	C-2
Q903	I-2

MM-20P BOARD (COMPONENT SIDE)



MM-20P BOARD (CONDUCTOR SIDE)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MM-20P (DIGITAL PICTURE) PRINTED WIRING BOARD

— Ref. No. MM-20P BOARD: 10000 series —

SISTOR 〉

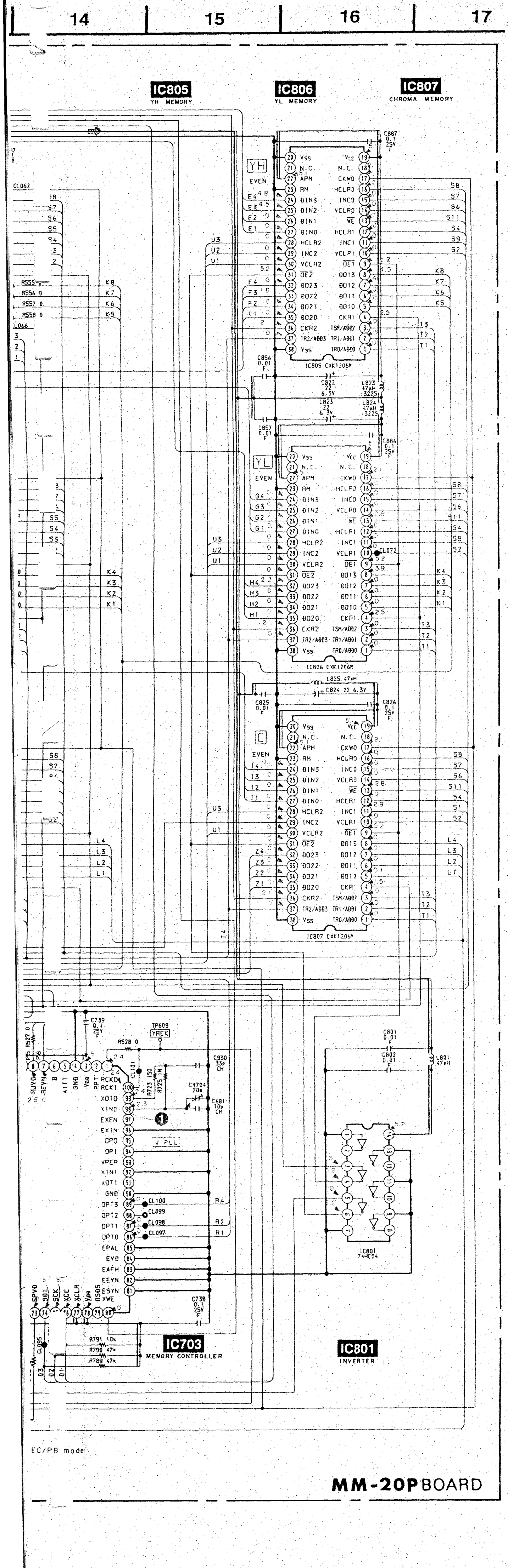
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SA1162-G
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC1623-L5L6
STOR	2SC2223-F14
STOR	2SA1226-E4
STOR	2SC1623-L5L6
STOR	2SA1162-G
STOR	2SC1623-L5L6

MM-20P BOARD (CONDUCTOR SIDE)

IC705	G-3
IC706	E-6
IC707	D-4
IC807	F-5
Q603	I-3
Q604	I-3
Q605	I-2
Q606	H-2
Q607	H-2
Q608	H-2
Q609	J-3
Q610	B-2
Q611	D-2
Q613	I-3
Q615	B-4
Q616	A-2
Q617	A-2
Q618	A-2
Q619	B-2
Q628	H-2
Q631	I-4
Q637	H-4
Q900	I-2
Q901	I-2

MM-20P BOARD (COMPONENT SIDE)

D701	I-4
D702	I-4
D901	D-2
IC701	G-3
IC702	C-3
IC703	E-3
IC704	I-4
IC708	H-2
IC709	G-2
IC710	B-3
IC711	B-4
IC801	C-5
IC805	F-5
IC806	D-5
IC900	E-2
IC902	F-1
IC904	E-1
IC905	I-1
IC906	I-1
Q612	C-2
Q614	C-2
Q903	I-2


14
15
16
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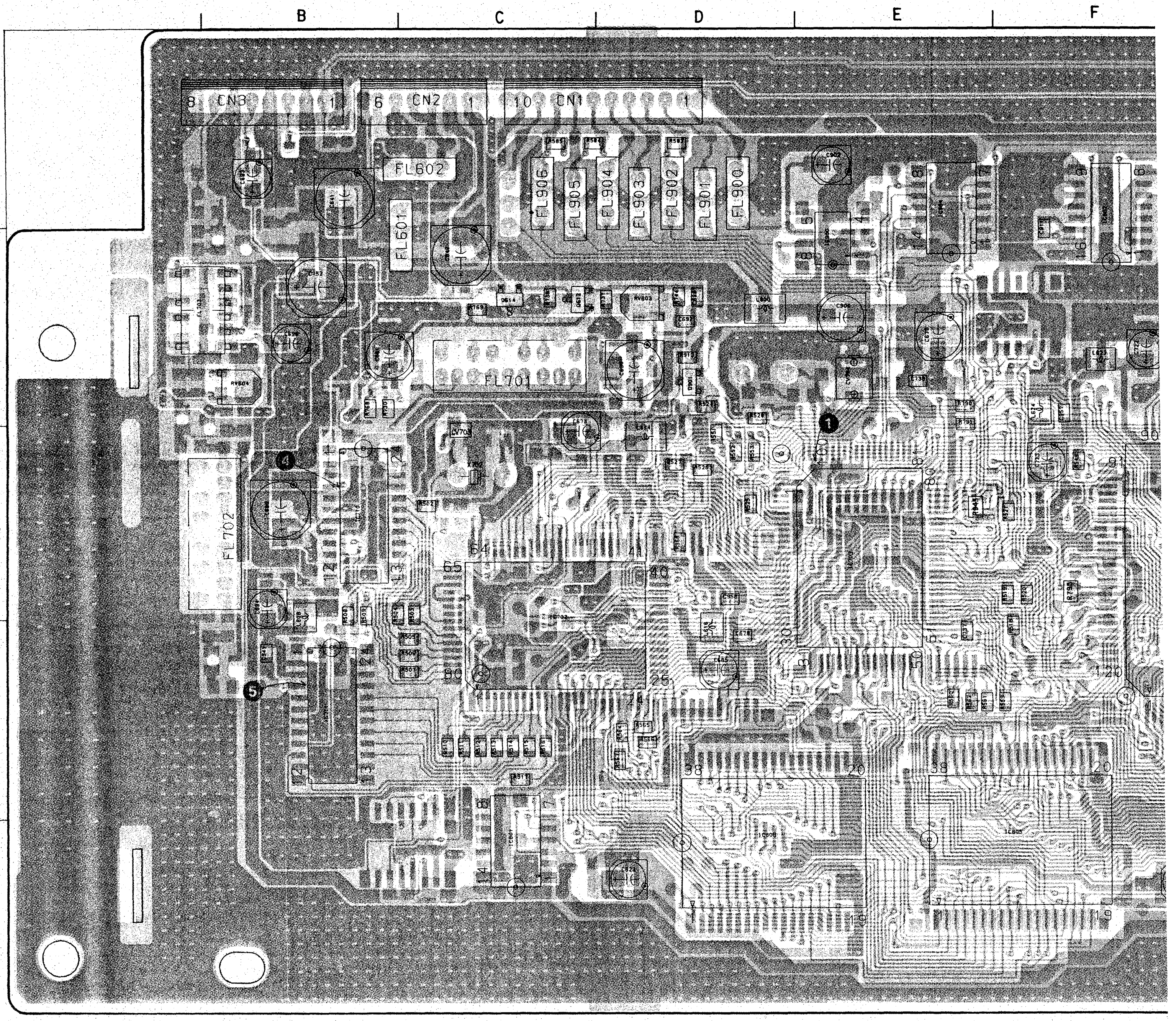
IC805
YH MEMORY
IC806
YL MEMORY
IC807
CHROMA MEMORY
IC805 CXK1206P
IC806 CXK1206P
IC807 CXK1206P
IC703
MEMORY CONTROLLER
IC801
INVERTER
IC801 74HC04
V PLL
REC/PB mode
MM-20P BOARD

MM-20P BOARD (COMPONENT SIDE)


B
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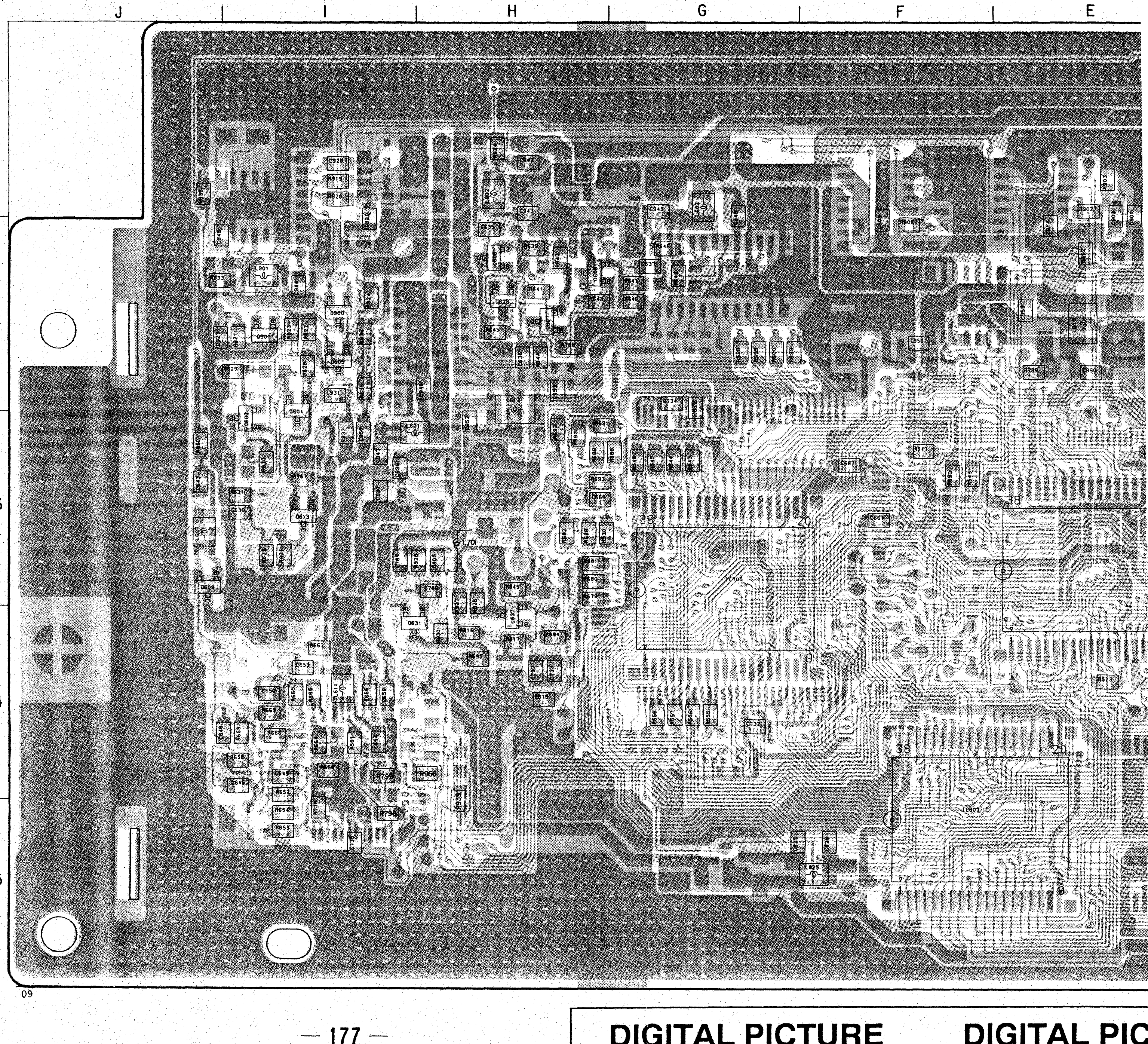
CN3
CN2
CN1
FL602
FL601
FL906
FL905
FL904
FL903
FL902
FL901
FL900
FL701
FL702

MM-20P BOARD (CONDUCTOR SIDE)


J
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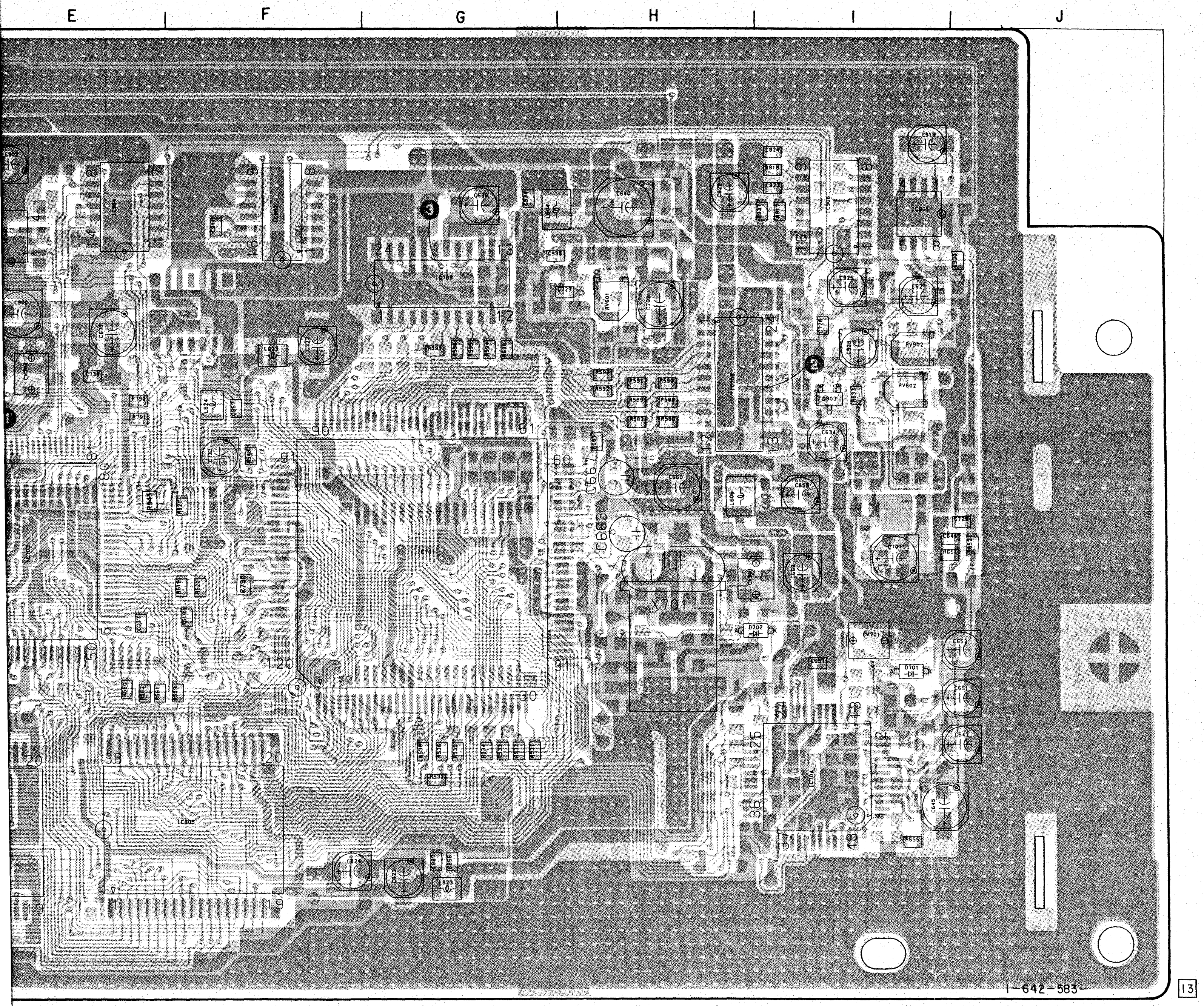
E
F
G
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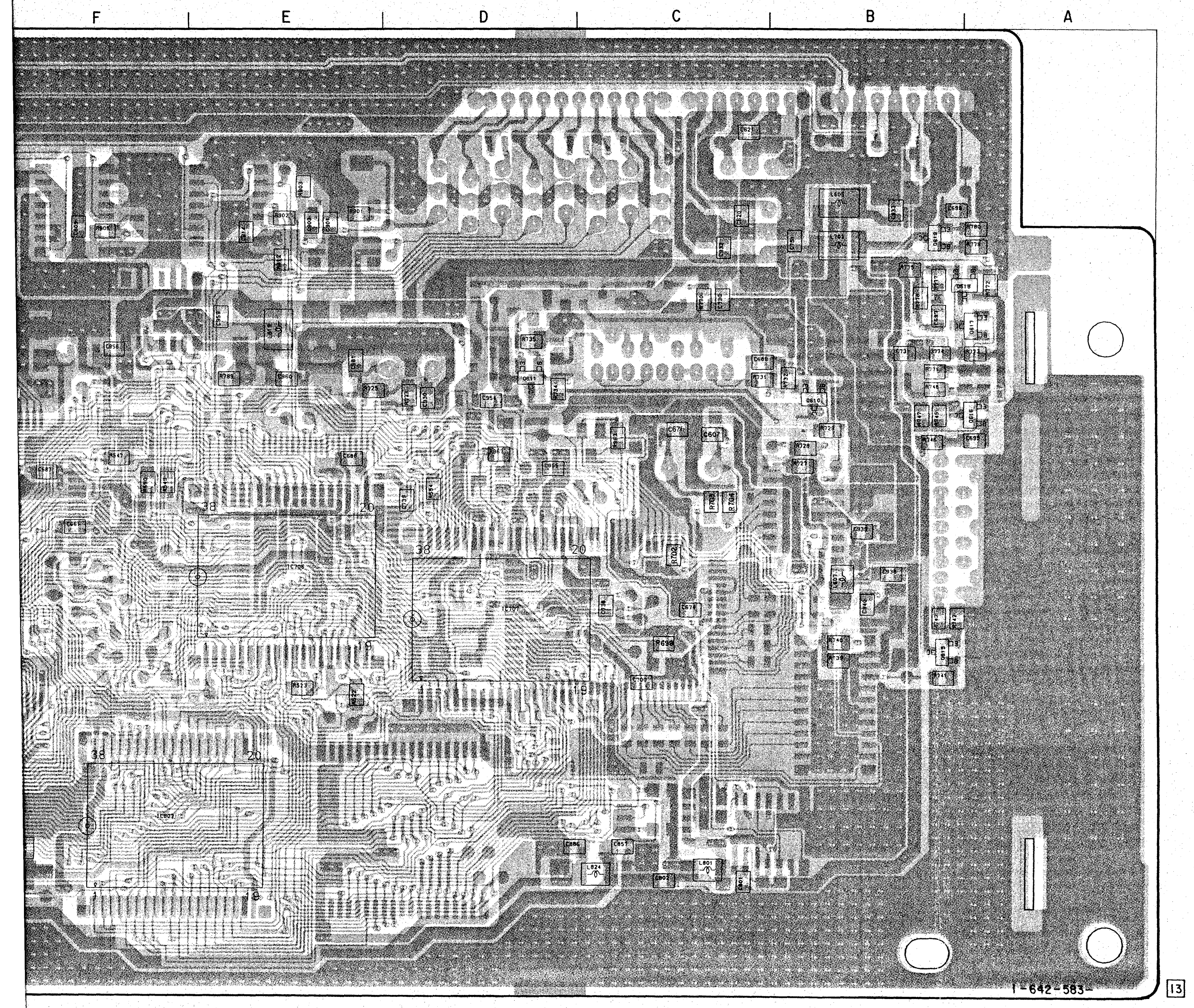
J
1-642-583-
13


F
E
D
C
B
A
1-642-583-
13

MA-163 (AUDIO SIGNAL SELECT,FUNCTION CONTROL) PRINTED WIRING BOARD

— Ref. No. MA-163 BOARD: 9000 series —

(DIODE)

D001	8-719-104-34	DIODE	1S2836
D002	8-719-104-34	DIODE	1S2836
D003	8-719-104-34	DIODE	1S2836
D010	8-719-800-76	DIODE	1SS226
D051	8-719-104-34	DIODE	1S2836
D052	8-719-104-34	DIODE	1S2836
D053	8-719-104-34	DIODE	1S2836
D060	8-719-400-18	DIODE	MA152WK
D162	8-719-104-34	DIODE	1S2836
D163	8-719-104-34	DIODE	1S2836
D164	8-719-104-34	DIODE	1S2836
D165	8-719-400-18	DIODE	MA152WK
D166	8-719-400-18	DIODE	MA152WK
D167	8-719-400-18	DIODE	MA152WK
D168	8-719-400-18	DIODE	MA152WK
D169	8-719-104-34	DIODE	1S2836
D170	8-719-400-18	DIODE	MA152WK
D171	8-719-800-76	DIODE	1SS226
D201	8-719-400-18	DIODE	MA152WK
D202	8-719-104-34	DIODE	1S2836
D501	8-719-104-34	DIODE	1S2836
D502	8-719-104-34	DIODE	1S2836
D503	8-719-104-34	DIODE	1S2836
D801	8-719-400-18	DIODE	MA152WK

(IC)

IC004	8-759-981-92	IC	RC4558M
IC005	8-759-932-64	IC	BU4052BF
IC006	8-759-981-92	IC	RC4558M
IC051	8-759-981-92	IC	RC4558M
IC054	8-759-981-92	IC	RC4558M
IC055	8-759-932-64	IC	BU4052BF
IC056	8-759-981-92	IC	RC4558M
IC165	8-759-200-67	IC	TC4001BF
IC166	8-759-233-64	IC	TC74HCU04AF
IC501	8-759-603-27	IC	M5201FP
IC531	8-759-603-27	IC	M5201FP
IC551	8-759-603-27	IC	M5201FP
IC801	8-759-149-16	IC	uPD78213GC-AB8
IC804	8-759-926-05	IC	SN74HC125ANS
IC805	8-759-926-05	IC	SN74HC125ANS
IC806	8-752-326-33	IC	CXK1011M
IC807	8-759-926-67	IC	SN74HC374ANS
IC808	8-752-332-28	IC	CXK5864BM-12L-T6
IC809	8-759-084-55	IC	MBM27C512P-GDX978
IC810	8-759-937-56	IC	S-8054ALB-LM-S
IC811	8-759-926-48	IC	SN74HC244ANS
IC812	8-759-926-67	IC	SN74HC374ANS
IC813	8-759-926-67	IC	SN74HC374ANS
IC814	8-759-925-85	IC	SN74HC32ANS
IC815	8-759-926-12	IC	SN74HC139ANS
IC816	8-759-925-74	IC	SN74HC04ANS
IC817	8-759-925-85	IC	SN74HC32ANS
IC818	8-759-009-51	IC	MC14538BF
IC819	8-759-009-51	IC	MC14538BF
IC820	8-759-925-90	IC	SN74HC74ANS
IC821	8-759-937-56	IC	S-8054ALB-LM-S
IC822	8-759-009-51	IC	MC14538BF
IC823	8-759-300-71	IC	HD14053BFP
IC824	8-759-925-79	IC	SN74HC11ANS
ICS809	1-540-250-11	IC	SOCKET, SIL

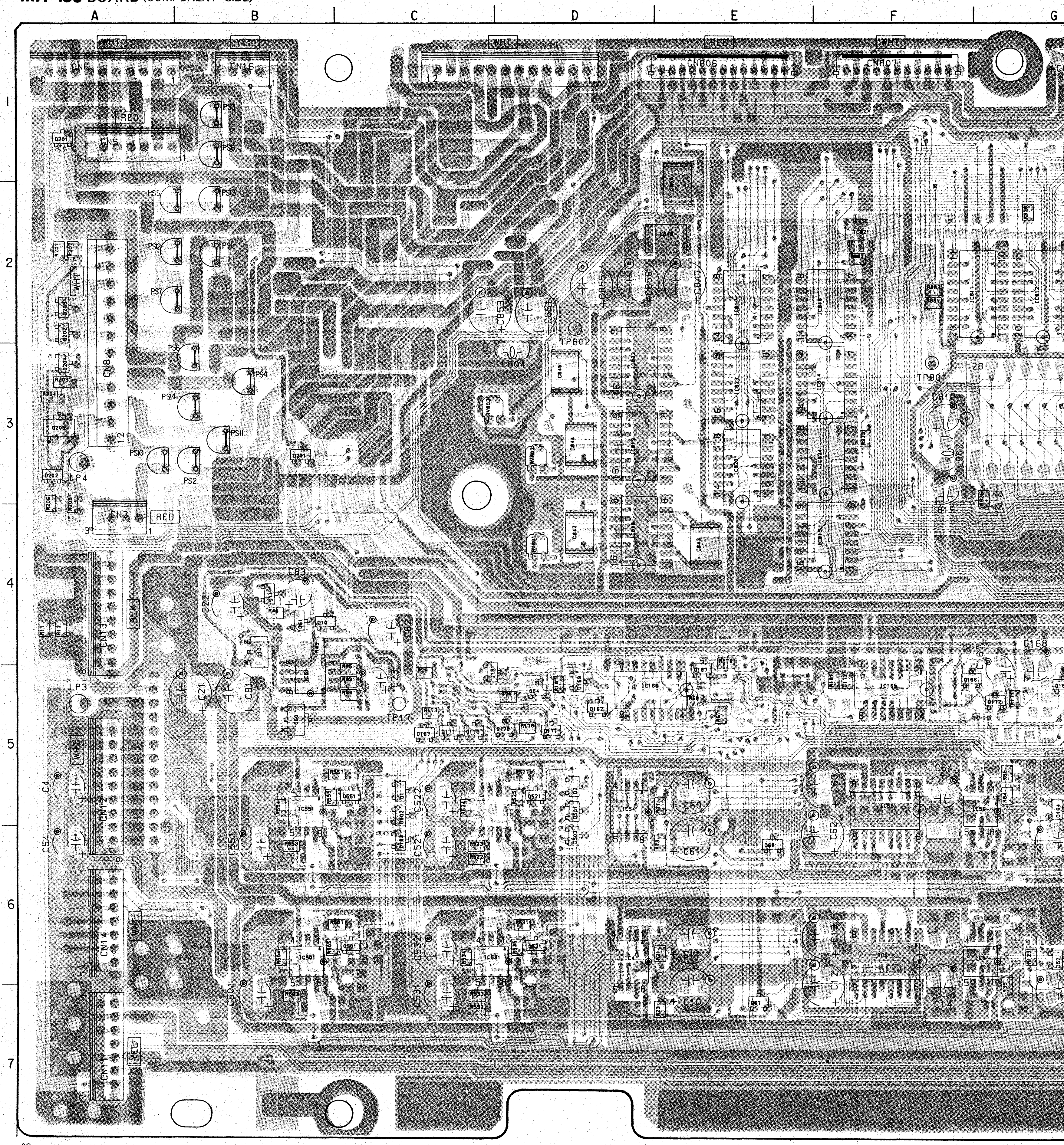
(TRANSISTOR)

Q001	8-729-202-38	TRANSISTOR	2SC3326N-A
Q002	8-729-202-38	TRANSISTOR	2SC3326N-A
Q003	8-729-202-38	TRANSISTOR	2SC3326N-A
Q004	8-729-202-38	TRANSISTOR	2SC3326N-A
Q005	8-729-202-38	TRANSISTOR	2SC3326N-A
Q006	8-729-202-38	TRANSISTOR	2SC3326N-A
Q010	8-729-140-75	TRANSISTOR	2SD999-CLCK
Q011	8-729-901-06	TRANSISTOR	DTA144EK
Q050	8-729-901-06	TRANSISTOR	DTA144EK
Q051	8-729-901-06	TRANSISTOR	DTA144EK
Q052	8-729-202-38	TRANSISTOR	2SC3326N-A
Q053	8-729-901-06	TRANSISTOR	DTA144EK
Q054	8-729-901-06	TRANSISTOR	DTA144EK
Q055	8-729-901-06	TRANSISTOR	DTA144EK
Q056	8-729-202-38	TRANSISTOR	2SC3326N-A
Q059	8-729-901-06	TRANSISTOR	DTA144EK
Q060	8-729-101-07	TRANSISTOR	2SB798-DL
Q061	8-729-901-01	TRANSISTOR	DTC144EK
Q062	8-729-901-01	TRANSISTOR	DTC144EK
Q063	8-729-901-06	TRANSISTOR	DTA144EK
Q064	8-729-901-01	TRANSISTOR	DTC144EK
Q065	8-729-901-01	TRANSISTOR	DTC144EK
Q066	8-729-901-01	TRANSISTOR	DTC144EK
Q067	8-729-901-01	TRANSISTOR	DTC144EK
Q068	8-729-901-01	TRANSISTOR	DTC144EK
Q164	8-729-901-06	TRANSISTOR	DTA144EK
Q165	8-729-901-06	TRANSISTOR	DTA144EK
Q166	8-729-901-01	TRANSISTOR	DTC144EK
Q167	8-729-100-66	TRANSISTOR	2SC1623-L6
Q168	8-729-901-06	TRANSISTOR	DTA144EK
Q169	8-729-901-06	TRANSISTOR	DTA144EK
Q170	8-729-901-06	TRANSISTOR	DTA144EK
Q171	8-729-901-06	TRANSISTOR	DTA144EK
Q172	8-729-100-66	TRANSISTOR	2SC1623-L6
Q174	8-729-901-06	TRANSISTOR	DTA144EK
Q175	8-729-901-06	TRANSISTOR	DTA144EK
Q176	8-729-901-06	TRANSISTOR	DTA144EK
Q177	8-729-901-06	TRANSISTOR	DTA144EK
Q178	8-729-901-01	TRANSISTOR	DTC144EK
Q179	8-729-901-06	TRANSISTOR	DTA144EK
Q180	8-729-901-01	TRANSISTOR	DTC144EK
Q181	8-729-901-01	TRANSISTOR	DTC144EK

MA-163 BOARD (COMPONENT SIDE)

D001	C-5
D002	D-5
D010	B-4
D052	G-5
D162	D-5
D163	C-6
D164	G-5
D167	C-5
D169	D-5
D170	H-5
D201	B-3
D202	A-3
D501	D-5
D502	C-5
D503	D-6
D801	I-1
IC004	D-6
IC005	F-6
IC006	G-6
IC051	B-5
IC054	D-5
IC055	F-5
IC056	G-5
IC165	F-5
IC166	D-5
IC501	B-6
IC531	C-6
IC551	B-5
IC801	I-2
IC804	L-4
IC805	L-4
IC806	I-5
IC807	G-2
IC808	L-5
IC809	G-3
IC810	I-1
IC811	F-2
IC812	G-2
IC813	G-2
IC814	F-3
IC815	F-4
IC816	F-2
IC817	E-2
IC818	D-4
IC819	D-3
IC820	E-3
IC821	F-2
IC822	D-3
IC823	E-3
IC824	F-3
Q010	B-4
Q011	B-4
Q054	D-5
Q060	B-5
Q061	B-4
Q067	E-7
Q068	E-6
Q167	H-5
Q168	G-5
Q169	G-5
Q170	C-5
Q171	C-5
Q172	G-5
Q177	D-5
Q178	D-5
Q183	H-5
Q184	H-5
Q187	E-5
Q191	C-5
Q201	A-1
Q202	A-2
Q203	A-2
Q204	A-3
Q205	A-3
Q501	C-6
Q521	D-5
Q531	D-6
Q551	C-5
Q801	I-1

MA-163 BOARD (COMPONENT SIDE)



DTA144EK
2SB798-DL
DTC144EK
DTC144EK
DTA144EK

DTC144EK
DTC144EK
DTC144EK
DTC144EK
DTC144EK

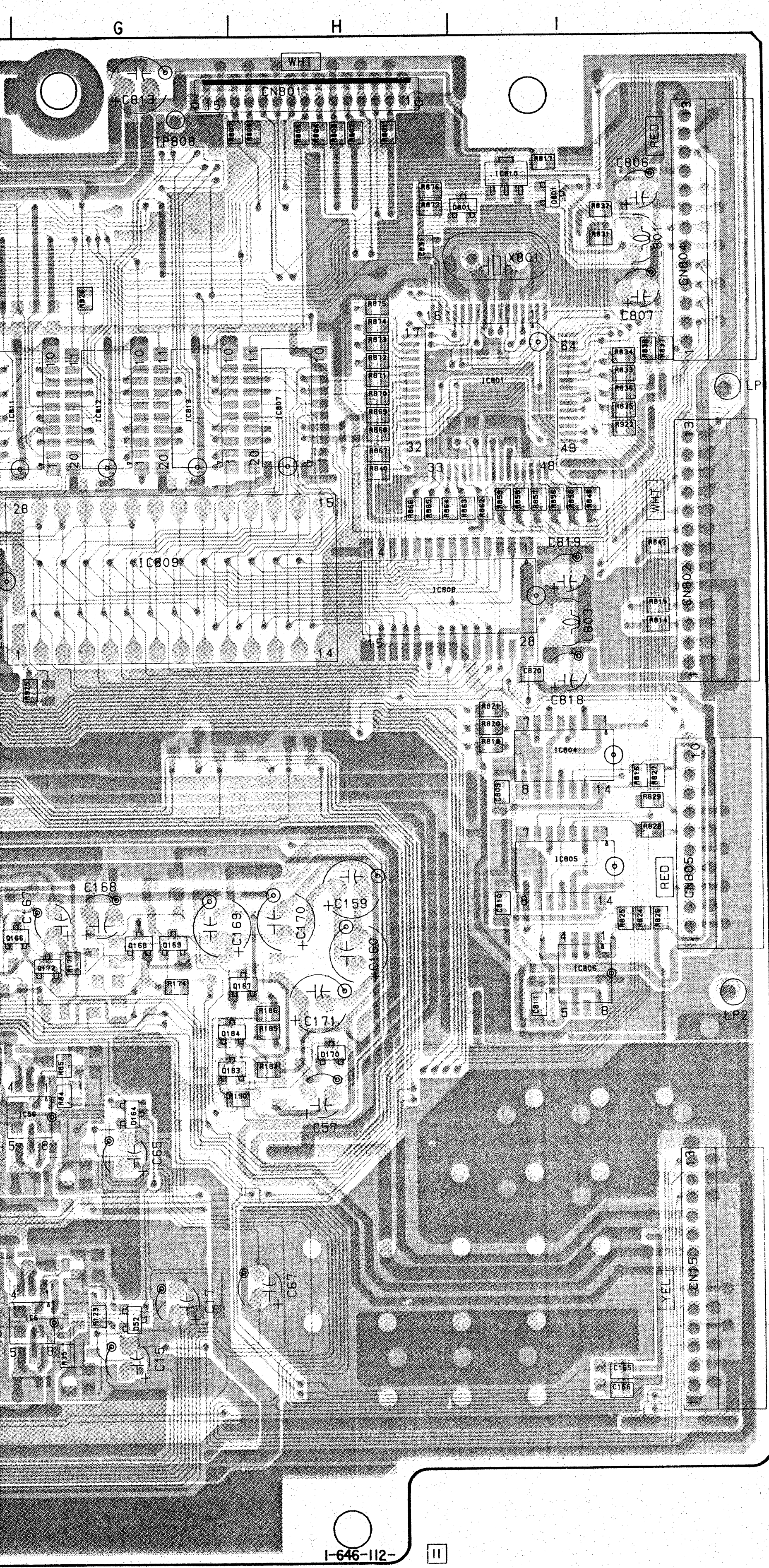
DTA144EK
DTA144EK
DTC144EK
2SC1623-L6
DTA144EK

DTA144EK
DTA144EK
DTA144EK
2SC1623-L6
DTA144EK

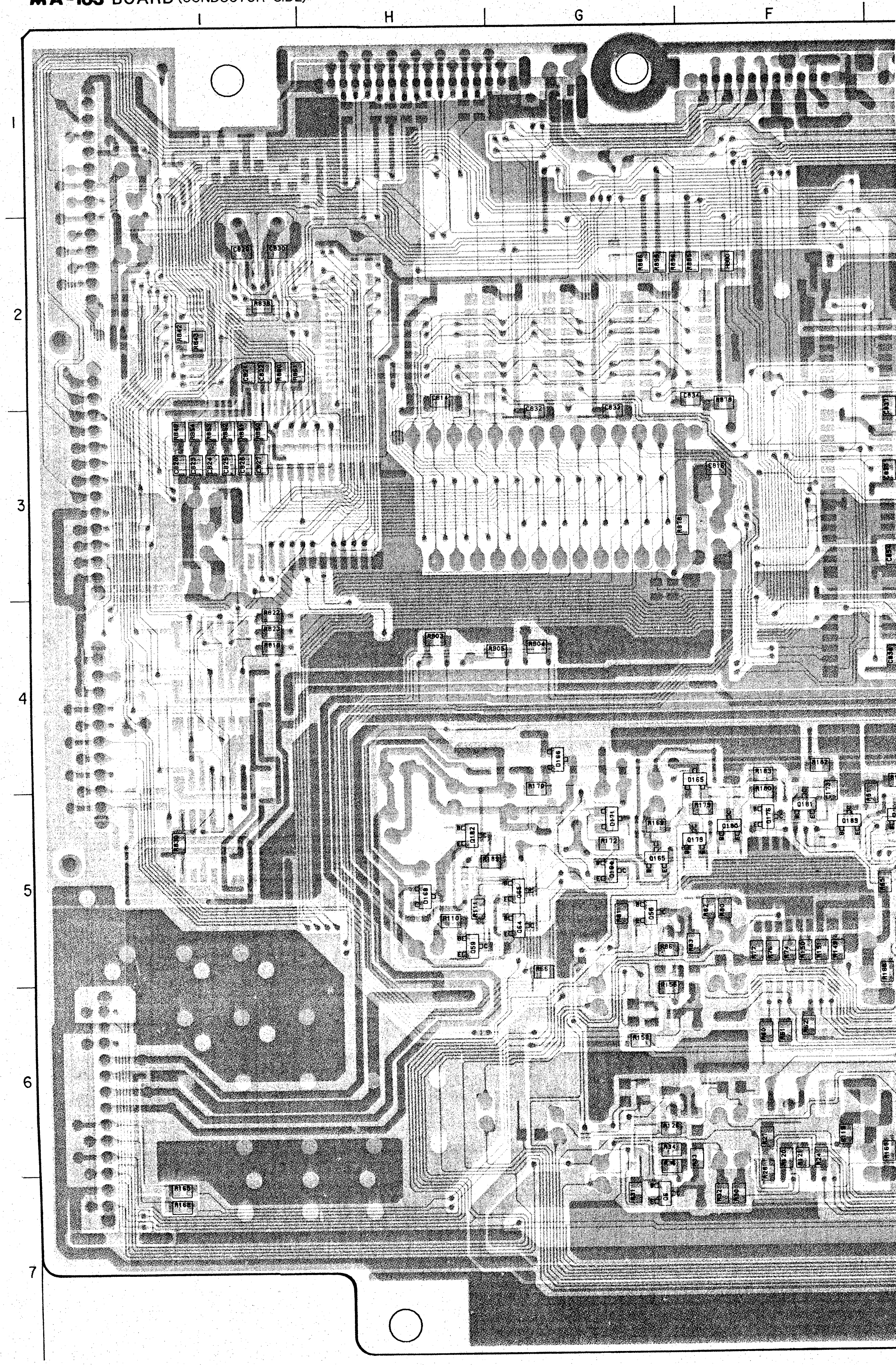
DTA144EK
DTA144EK
DTA144EK
DTC144EK
DTA144EK

DTC144EK
DTC144EK

Q182	8-729-216-22	TRANSISTOR	2SA1162-G
Q183	8-729-901-01	TRANSISTOR	DTC144EK
Q184	8-729-901-01	TRANSISTOR	DTC144EK
Q185	8-729-901-01	TRANSISTOR	DTC144EK
Q186	8-729-901-06	TRANSISTOR	DTA144EK
Q187	8-729-901-01	TRANSISTOR	DTC144EK
Q188	8-729-901-06	TRANSISTOR	DTA144EK
Q189	8-729-901-06	TRANSISTOR	DTA144EK
Q190	8-729-901-06	TRANSISTOR	DTA144EK
Q191	8-729-901-04	TRANSISTOR	DTA114EK
Q201	8-729-216-22	TRANSISTOR	2SA1162-G
Q202	8-729-901-05	TRANSISTOR	DTA124EK
Q203	8-729-901-05	TRANSISTOR	DTA124EK
Q204	8-729-900-53	TRANSISTOR	DTC114EK
Q205	8-729-140-75	TRANSISTOR	2SD999-CLCK
Q501	8-729-901-01	TRANSISTOR	DTC144EK
Q502	8-729-202-38	TRANSISTOR	2SC3326N-A
Q503	8-729-202-38	TRANSISTOR	2SC3326N-A
Q521	8-729-901-01	TRANSISTOR	DTC144EK
Q522	8-729-202-38	TRANSISTOR	2SC3326N-A
Q523	8-729-202-38	TRANSISTOR	2SC3326N-A
Q531	8-729-901-01	TRANSISTOR	DTC144EK
Q532	8-729-202-38	TRANSISTOR	2SC3326N-A
Q533	8-729-202-38	TRANSISTOR	2SC3326N-A
Q551	8-729-901-01	TRANSISTOR	DTC144EK
Q552	8-729-202-38	TRANSISTOR	2SC3326N-A
Q553	8-729-202-38	TRANSISTOR	2SC3326N-A
Q801	8-729-901-01	TRANSISTOR	DTC144EK

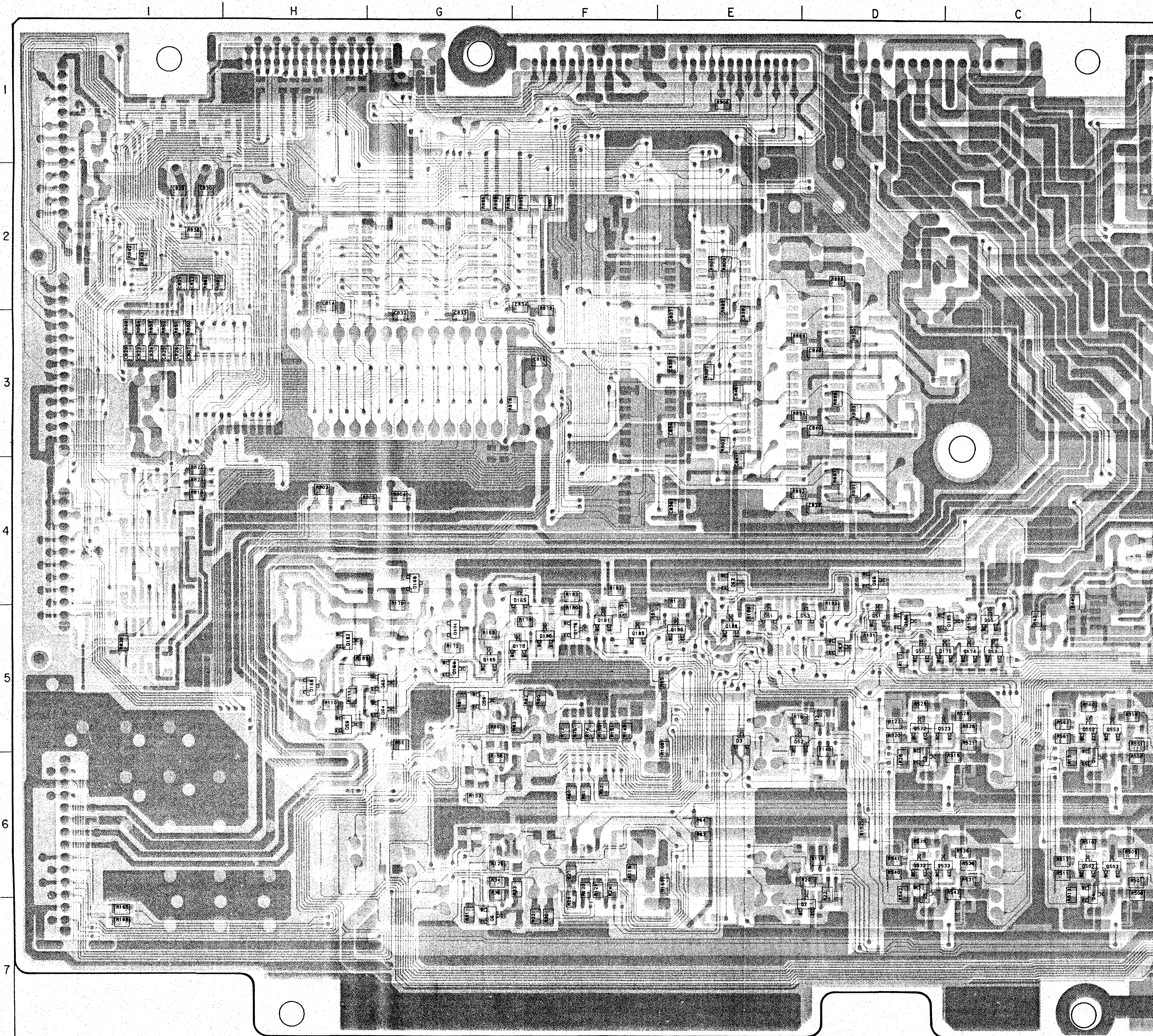


MA-163 BOARD (CONDUCTOR SIDE)



8-729-202-38 TRANSISTOR 2SC3326N-A
8-729-901-01 TRANSISTOR DTC144EK

MA-163 BOARD (CONDUCTOR SIDE)


I
H
G
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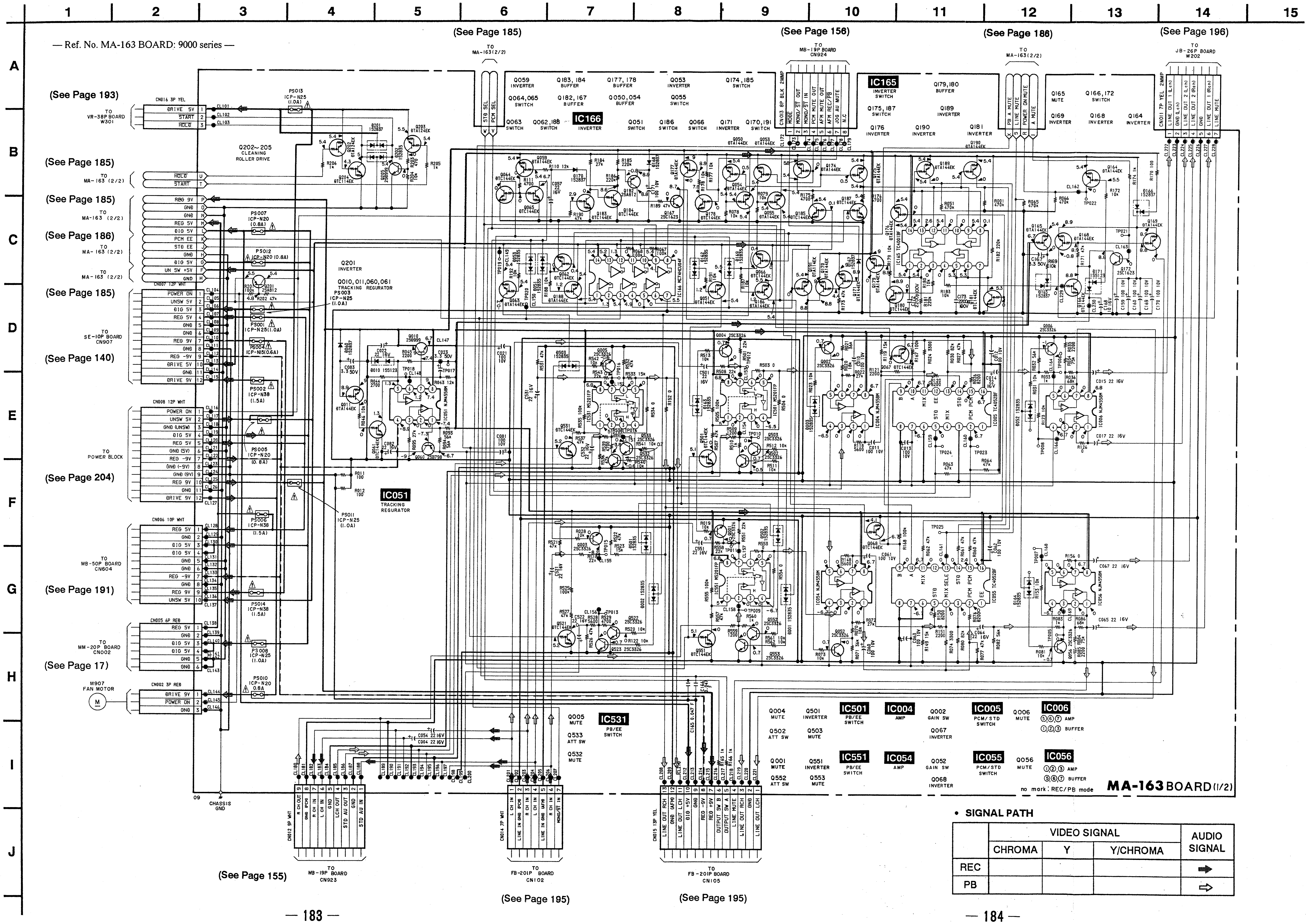
7

MA-163 (AUDIO SIGNAL SELECT) SCHEMATIC DIAGRAM

- Refer to page 179 for Printed Wiring Board.



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
— Ref. No. MA-163 BOARD: 9000 series —
(See Page 185)
TO MA-163(2/2)
(See Page 156)
TO MB-19P BOARD CN924
(See Page 186)
TO MA-163(2/2)
(See Page 196)
TO JB-26P BOARD W202
(See Page 193)
TO VR-38P BOARD W301
CN016 3P YEL
DRIVE 5V
START
ROLO
(See Page 185)
TO MA-163 (2/2)
(See Page 185)
TO MA-163 (2/2)
(See Page 186)
TO MA-163 (2/2)
TO MA-163 (2/2)
REG 9V
GND
REG 5V
DIG 5V
PCM EE
STD EE
UN SW +5V
(See Page 185)
CN007 12P WHT
POWER ON
UNSW 5V
DIG 5V
REG 5V
REG 9V
REG -9V
DRIVE 5V
DRIVE 9V
TO SE-10P BOARD CN907
(See Page 140)
CN008 12P WHT
GND (UNSW)
GND (5V)
GND (-9V)
GND (9V)
TO POWER BLOCK
(See Page 204)
CN006 10P WHT
TO MB-50P BOARD CN604
(See Page 191)
UNSW 5V
CN005 6P RED
TO MM-20P BOARD CN002
(See Page 17)
M907 FAN MOTOR
CN002 3P RED
CHASSIS GND
PS013 ICP-N25 (1.0A)
PS007 ICP-N20 (0.8A)
PS012 ICP-N20 (0.8A)
PS003 ICP-N25 (1.0A)
PS001 ICP-N25(1.0A)
PS004 ICP-N15(0.6A)
PS002 ICP-N38 (1.5A)
PS005 ICP-N20 (0.8A)
PS011 ICP-N25 (1.0A)
PS006 ICP-N38 (1.5A)
PS014 ICP-N38 (1.5A)
PS008 ICP-N25 (1.0A)
PS010 ICP-N20 0.8A
Q202~205 CLEANING ROLLER DRIVE
Q201 INVERTER
Q010,011,060,061 TRACKING REGURATOR
IC051 TRACKING REGURATOR
Q059 INVERTER
Q064,065 SWITCH
Q063 SWITCH
Q062,188 SWITCH
Q183,184 BUFFER
Q182,167 BUFFER
IC166 INVERTER
Q177,178 BUFFER
Q050,054 BUFFER
Q051 SWITCH
Q053 INVERTER
Q055 SWITCH
Q186 SWITCH
Q066 SWITCH
Q174,185 SWITCH
Q171 INVERTER
Q170,191 SWITCH
CN013 8P BLK 2MMP
MODE
MONO/ST OUT
MONO/ST IN
PCM MUTE OUT
AFM REC/PB
JOG AU MUTE
N.C
IC165 INVERTER SWITCH
Q175,187 SWITCH
Q176 INVERTER
Q179,180 BUFFER
Q189 INVERTER
Q190 INVERTER
Q181 INVERTER
PB A MUTE
LINE MUTE
POWER ON MUTE
A MUTE
Q165 MUTE
Q169 INVERTER
Q166,172 SWITCH
Q168 INVERTER
Q164 INVERTER
CN001 7P YEL 2MMP
LINE OUT 1 (Lch)
GND (Lch)
LINE OUT 2 (Lch)
GND (Rch)
LINE OUT 1 (Rch)
LINE MUTE
IC531 M5201FP
IC551 M5201FP
IC004 NJM4558M
IC005 TC4052BF
IC006 NJM4558M
IC054 NJM4558M
IC055 TC4052BF
IC056 NJM4558M
IC179 TC4001BF
IC166 MC74HC04F
MIX STD EE PCM
MIX SELE STD PCM EE
Q004 MUTE
Q501 INVERTER
IC501 PB/EE SWITCH
IC004 AMP
Q002 GAIN SW
IC005 PCM/STD SWITCH
Q006 MUTE
IC006 ⑤,⑥,⑦ AMP ①,②,③ BUFFER
Q502 ATT SW
Q503 MUTE
Q067 INVERTER
Q005 MUTE
IC531 PB/EE SWITCH
Q533 ATT SW
Q532 MUTE
Q001 MUTE
Q551 INVERTER
IC551 PB/EE SWITCH
IC054 AMP
Q052 GAIN SW
IC055 PCM/STD SWITCH
Q056 MUTE
IC056 ①,②,③ AMP ⑤,⑥,⑦ BUFFER
Q552 ATT SW
Q553 MUTE
Q068 INVERTER
no mark : REC/PB mode
MA-163 BOARD (1/2)
CN012 9P WHT
R CH OUT
GND (PCM)
R CH IN
L CH IN
GND
LCH OUT
STD AU OUT
STD AU IN
TO MB-19P BOARD CN923
(See Page 155)
CN014 7P WHT
L CH IN
LINE IN GND (PCM)
R CH IN
LINE IN GND (AFM)
MONO/ST IN
TO FB-20IP BOARD CN102
(See Page 195)
CN015 13P YEL
LINE OUT RCH
GND (AFM)
LINE OUT LCH
D10 +5V
REG +9V
OUTPUT SW B
OUTPUT SW A
LINE MUTE
TO FB-20IP BOARD CN105
(See Page 195)

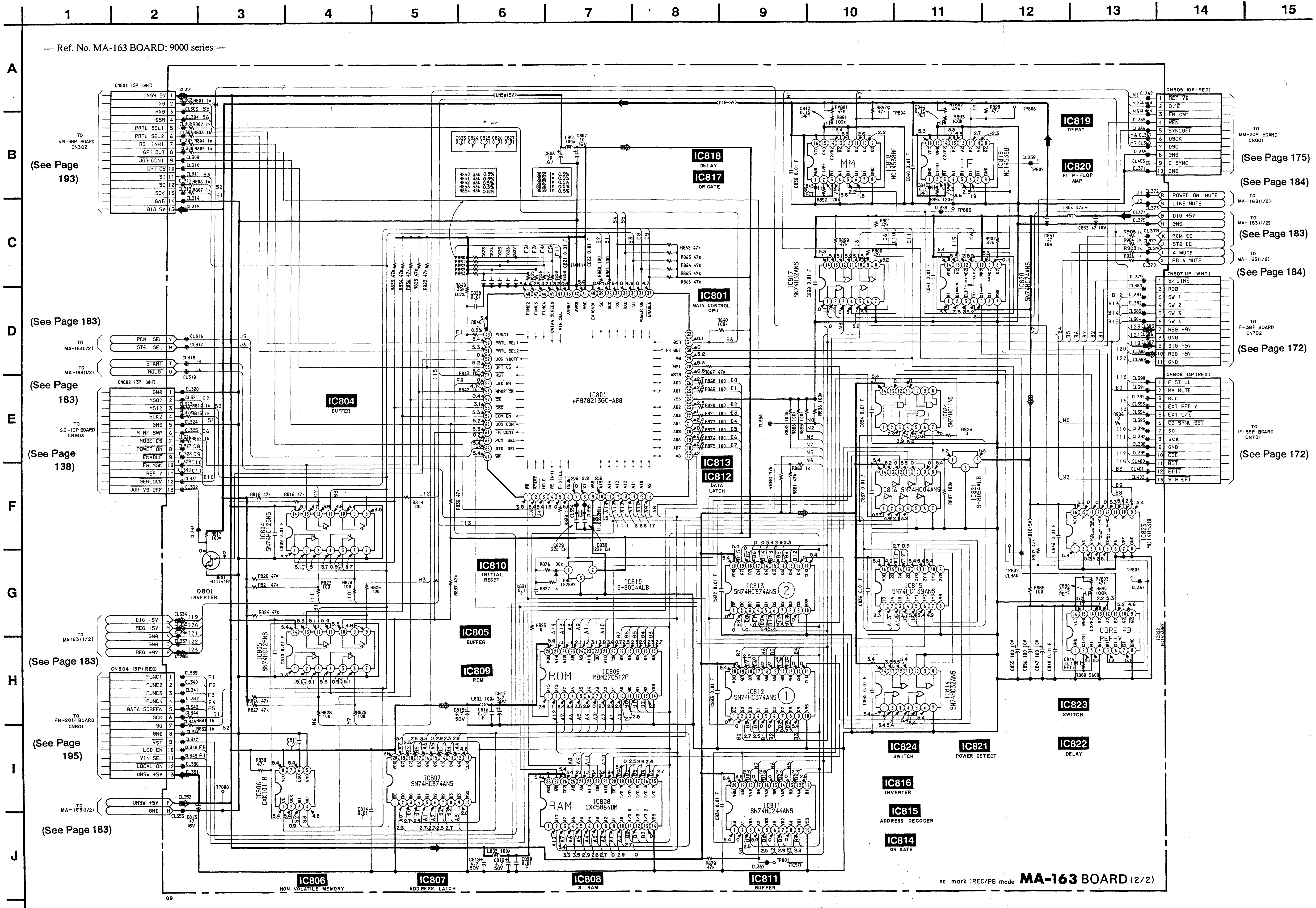
- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

MA-163 (FUNCTION CONTROL) SCHEMATIC DIAGRAM

• Refer to page 179 for Printed Wiring Board.

— Ref. No. MA-163 BOARD: 9000 series —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9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
CN801 15P (WHT)
UNSW 5V
TXD
RXD
DSR
PRTL SEL1
PRTL SEL2
RS INHI
GPI OUT
JOG CONT
OPT CS
SI
SO
SCK
GND
DIG 5V
TO VR-38P BOARD CN302
(See Page 193)
(See Page 183)
PCM SEL
STD SEL
TO MA-163(1/2)
START
HOLD
CN802 13P (WHT)
GND
MSO2
MSI2
SCK2
M RF SWP
MODE CS
POWER ON
ENABLE
FH MSK
REF V
GENLOCK
JOG VD OFF
TO SE-10P BOARD CN903
(See Page 138)
DIG +5V
REG +5V
REG +9V
CN804 13P (RED)
FUNC1
FUNC2
FUNC3
FUNC4
DATA SCREEN
SCK
SO
RST
LEG EN
VIN SEL
LOCAL ON
UNSW +5V
TO FB-201P BOARD CN801
(See Page 195)
UNSW +5V
(See Page 183)
Q801 INVERTER
Q801 DTC144EK
IC804 BUFFER
IC804 SN74HC125NS
IC805 BUFFER
IC805 SN74HC125NS
IC806 CXK1011M
IC807 SN74HC374ANS
IC808 CXK5864BM
RAM
IC809 ROM
IC809 MBM27C512P
ROM
IC810 INITIAL RESET
IC810 S-8054ALB
IC801 MAIN CONTROL CPU
IC801 μPD78213GC-AB8
IC818 DELAY
IC817 OR GATE
IC813
IC812 DATA LATCH
IC813 SN74HC374ANS ②
IC812 SN74HC374ANS ①
IC811 SN74HC244ANS
IC817 SN74H32ANS
IC818 MC14538BF
MM
IF
IC819 MC14538BF
IC819 DERAY
IC820 FLIP-FLOP AMP
IC820 SN74HC74ANS
IC824 SN74HC11NS
IC816 SN74HC04ANS
IC821 S-8054ALB
IC815 SN74HC139ANS
IC814 SN74HC32ANS
IC823 MC14053BF
IC822 MC14538BF
CORE PB REF-V
CN805 10P (RED)
REF VD
O/E
FM CNT
WEN
SYNCDET
DSCK
DSD
GND
C SYNC
TO MM-20P BOARD CN001
(See Page 175)
(See Page 184)
POWER ON MUTE
LINE MUTE
TO MA-163(1/2)
DIG +5V
PCM EE
STD EE
A MUTE
PB A MUTE
(See Page 183)
(See Page 184)
CN807 1P (WHT)
S/LINE
RGB
SW 1
SW 2
SW 3
SW 4
REG +5V
TO IF-38P BOARD CN702
(See Page 172)
CN806 13P (RED)
F STILL
MV MUTE
N.C
EXT REF V
EXT O/E
CO SYNC DET
SO
SCK
CSC
RST
EDIT
SIG DET
TO IF-38P BOARD CN701
(See Page 172)
TP801 (TEST)
IC806 NON VOLATILE MEMORY
IC807 ADDRESS LATCH
IC808 S-RAM
IC811 BUFFER
IC824 SWITCH
IC821 POWER DETECT
IC823 SWITCH
IC822 DELAY
IC816 INVERTER
IC815 ADDRESS DECODER
IC814 OR GATE
no mark : REC/PB mode
MA-163 BOARD (2/2)

(DIODE)

D309	8-719-157-54	DIODE	RD12M-B
D310	8-719-157-54	DIODE	RD12M-B
D311	8-719-157-54	DIODE	RD12M-B
D312	8-719-157-54	DIODE	RD12M-B
D313	8-719-157-54	DIODE	RD12M-B
D314	8-719-157-54	DIODE	RD12M-B
D318	8-719-157-54	DIODE	RD12M-B
D319	8-719-157-54	DIODE	RD12M-B

(IC)

IC303	8-759-521-07	IC	MAX238CWG
IC304	8-759-927-46	IC	SN74HC00ANS
IC307	8-759-300-71	IC	HD14053BFP
IC309	8-759-926-05	IC	SN74HC125ANS
IC310	8-759-926-05	IC	SN74HC125ANS

(TRANSISTOR)

Q303	8-729-901-01	TRANSISTOR	DTC144EK
Q304	8-729-901-01	TRANSISTOR	DTC144EK
Q306	8-729-901-01	TRANSISTOR	DTC144EK
Q307	8-729-901-01	TRANSISTOR	DTC144EK

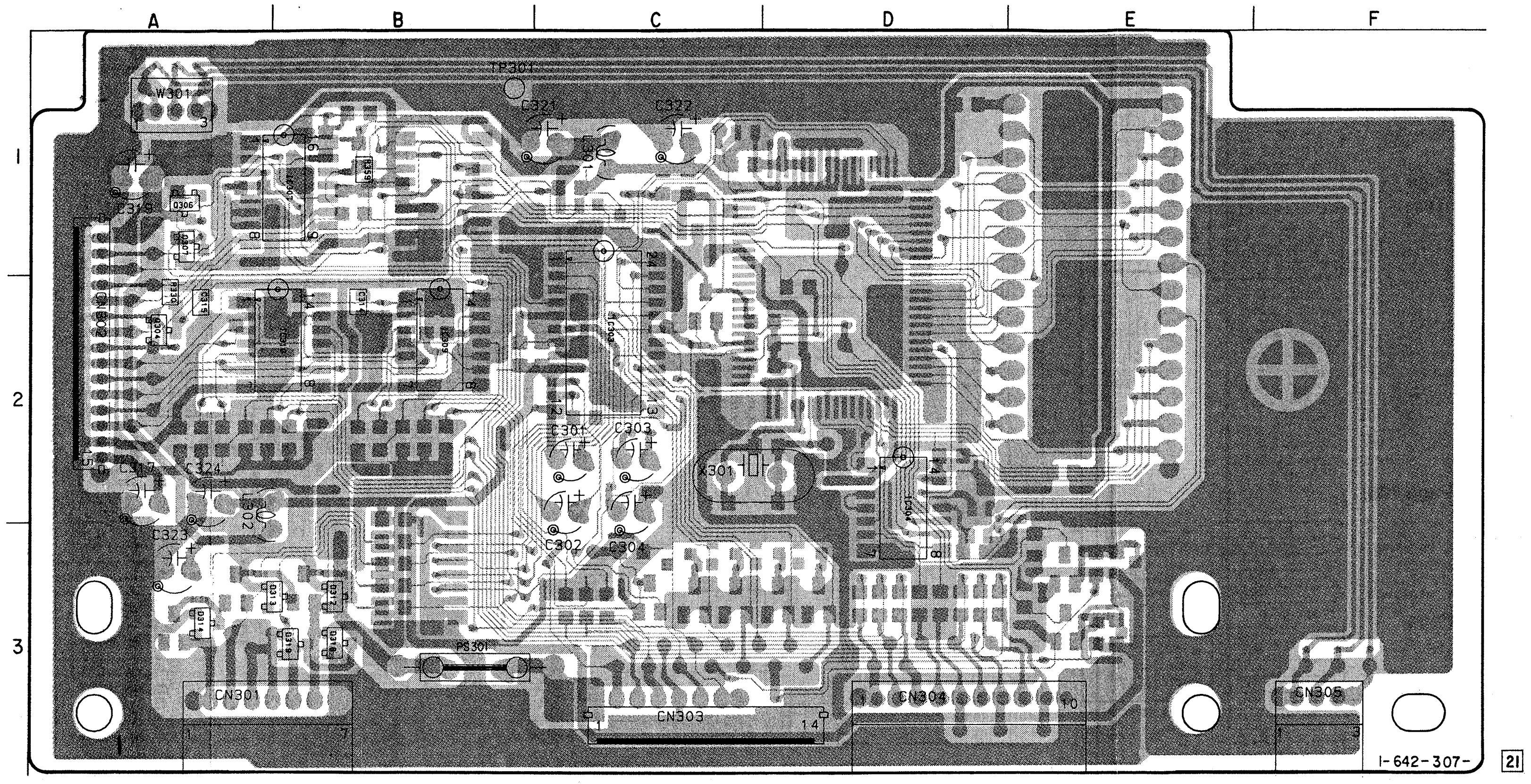
VR-38P (INTERFACE), MB-50P (MOTHER BOARD), TR-54P (VIDEO IN/OUT JACK) PRINTED WIRING BOARDS

— Ref. No. VR-38P, MB-50P, TR-54P BOARDS: 8000 series —

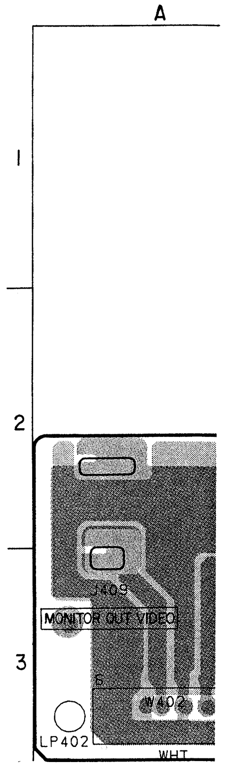
VR-38P BOARD
(COMPONENT
SIDE)

D312	B-3
D313	B-3
D314	A-3
D318	B-3
D319	B-3
IC303	C-2
IC304	D-2
IC307	B-1
IC309	B-2
IC310	A-1
Q304	A-2
Q306	A-1
Q307	A-1

VR-38P BOARD (COMPONENT SIDE)


A
B
C
D
E
F
1
2
3
W301
TP301
C321
C322
C319
Q306
Q307
Q304
C301
C303
C302
C304
X301
C324
C323
PS301
CN301
CN303
CN304
CN305
1-642-307-
21

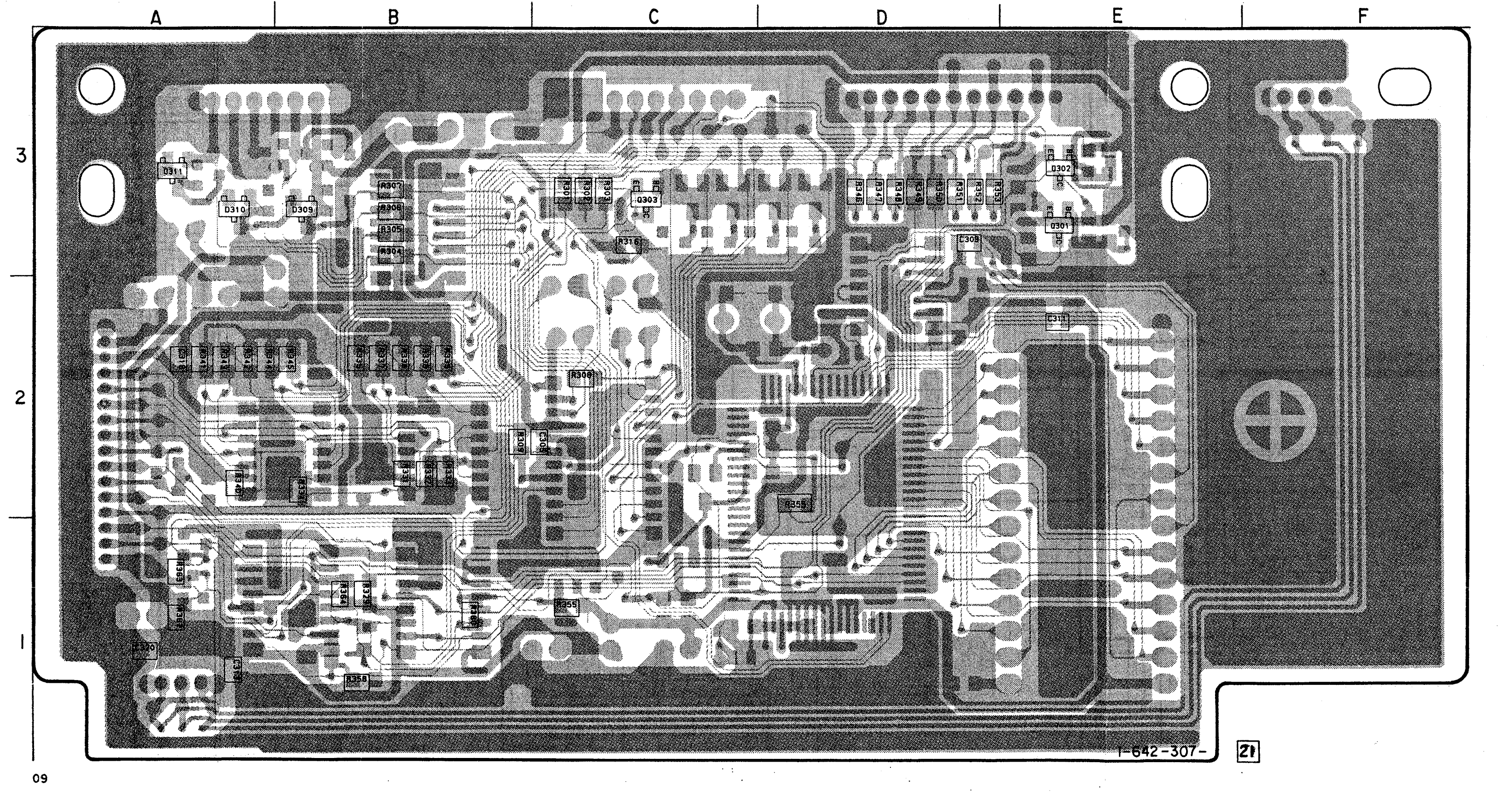
TR-54P BOAR


A
1
2
3
J409
MONITOR OUT VIDEO
W402
LP402
WHT

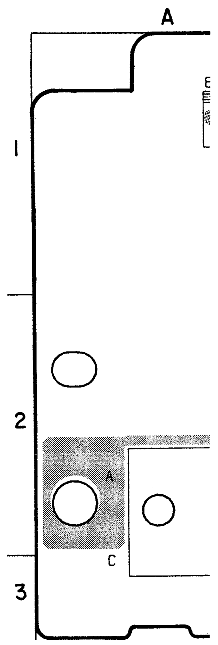
VR-38P BOARD
(CONDUCTOR
SIDE)

D309	B-2
D310	A-3
D311	A-3
Q301	E-3
Q302	E-3
Q303	C-3

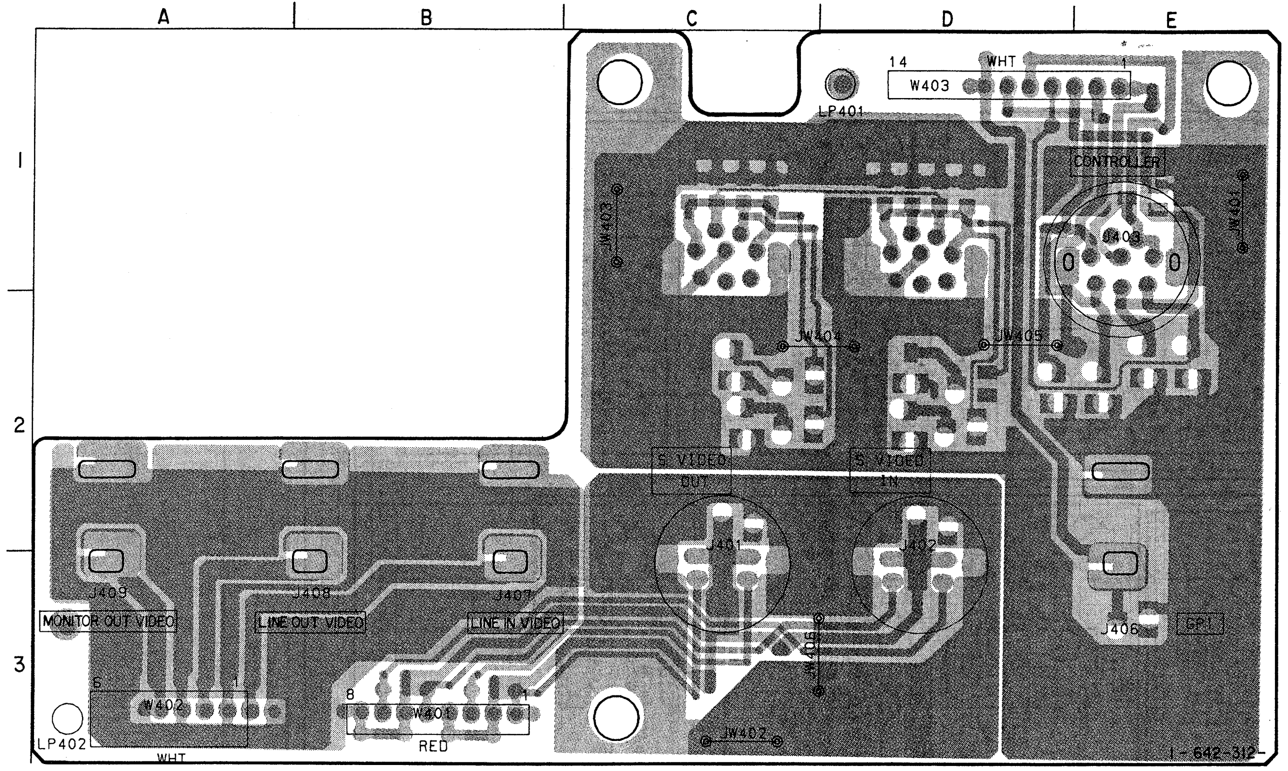
VR-38P BOARD (CONDUCTOR SIDE)


A
B
C
D
E
F
3
2
1
D311
D310
D309
Q303
Q302
Q301
1-642-307-
21
09

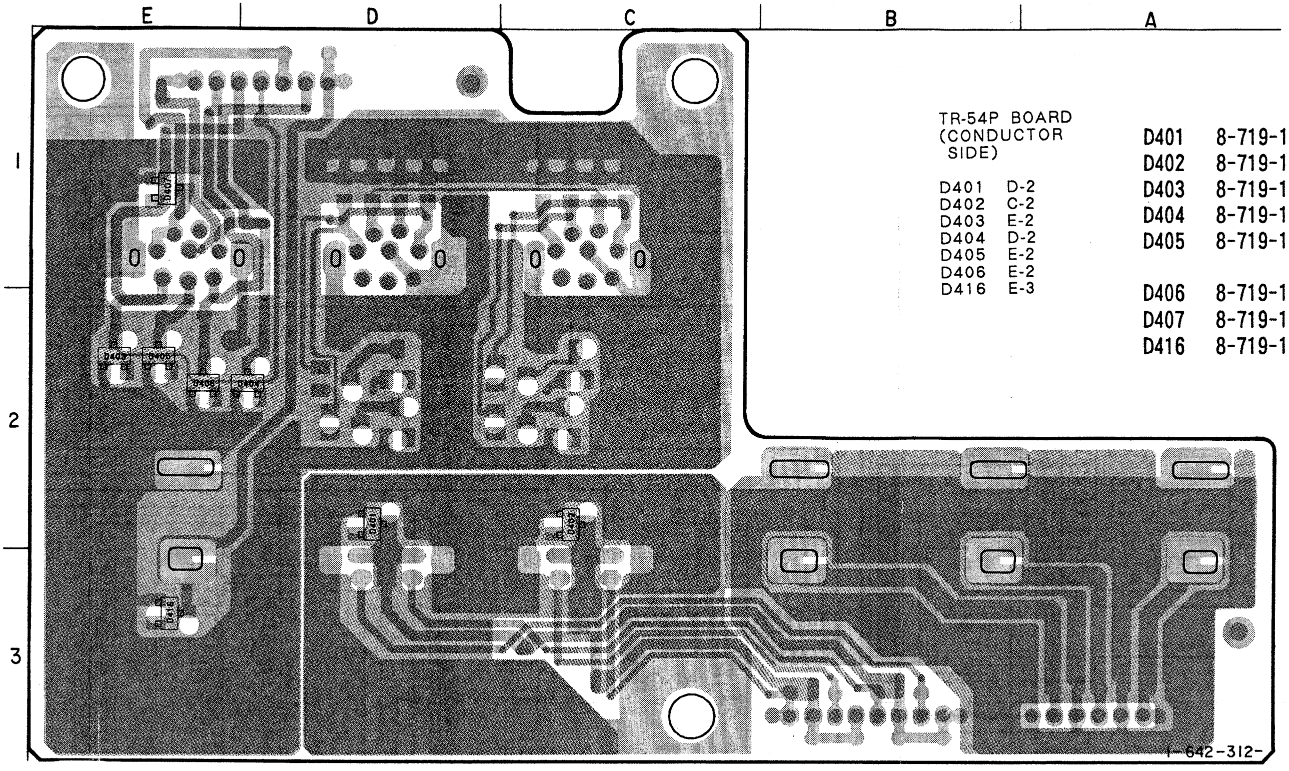
MB-50P BO



TR-54P BOARD (COMPONENT SIDE)


A
B
C
D
E
1
2
3
14
WHT
W403
LP401
CONTROLLER
W403
W401
J403
JW401
JW405
S VIDEO OUT
S VIDEO IN
J401
J402
J409
J408
J407
MONITOR OUT VIDEO
LINE OUT VIDEO
LINE IN VIDEO
J406
GP1
JW406
6
W402
1
LP402
WHT
8
W401
1
RED
JW402
1-642-312-
22

TR-54P BOARD (CONDUCTOR SIDE)


E
D
C
B
A
1
2
3
D407
D403
D405
D406
D404
D401
D402
D416
1-642-312-
22

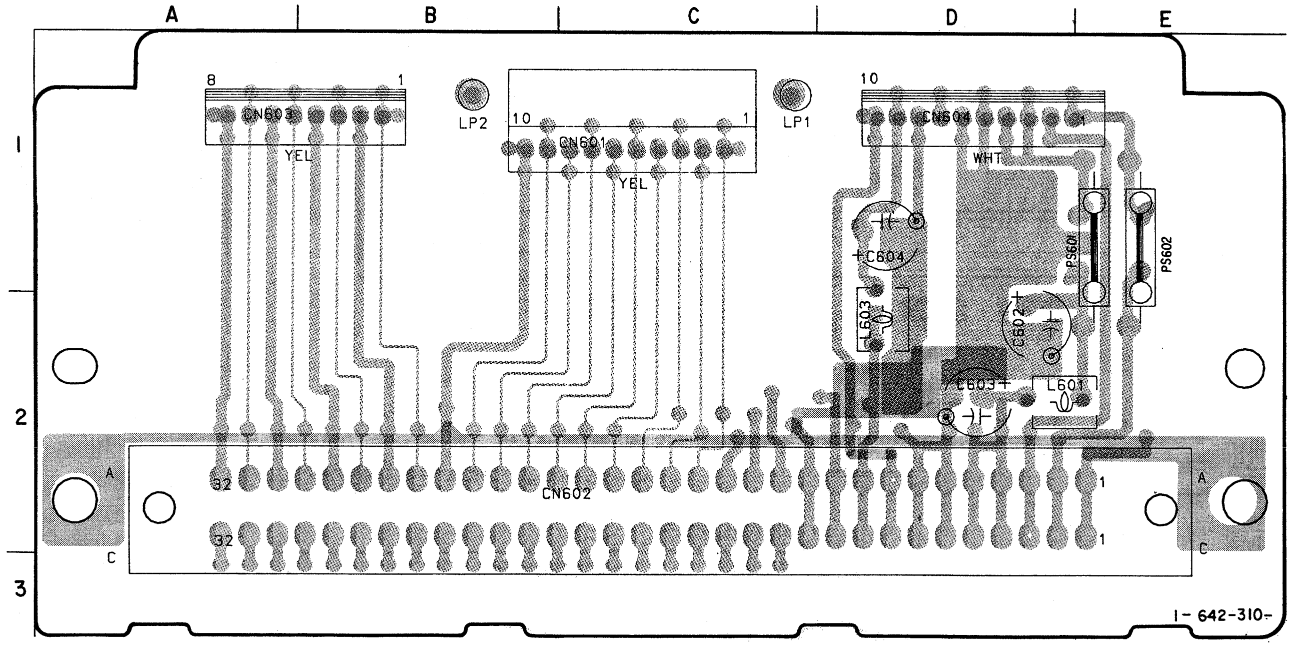
TR-54P BOARD
(CONDUCTOR
SIDE)

D401	D-2
D402	C-2
D403	E-2
D404	D-2
D405	E-2
D406	E-2
D416	E-3

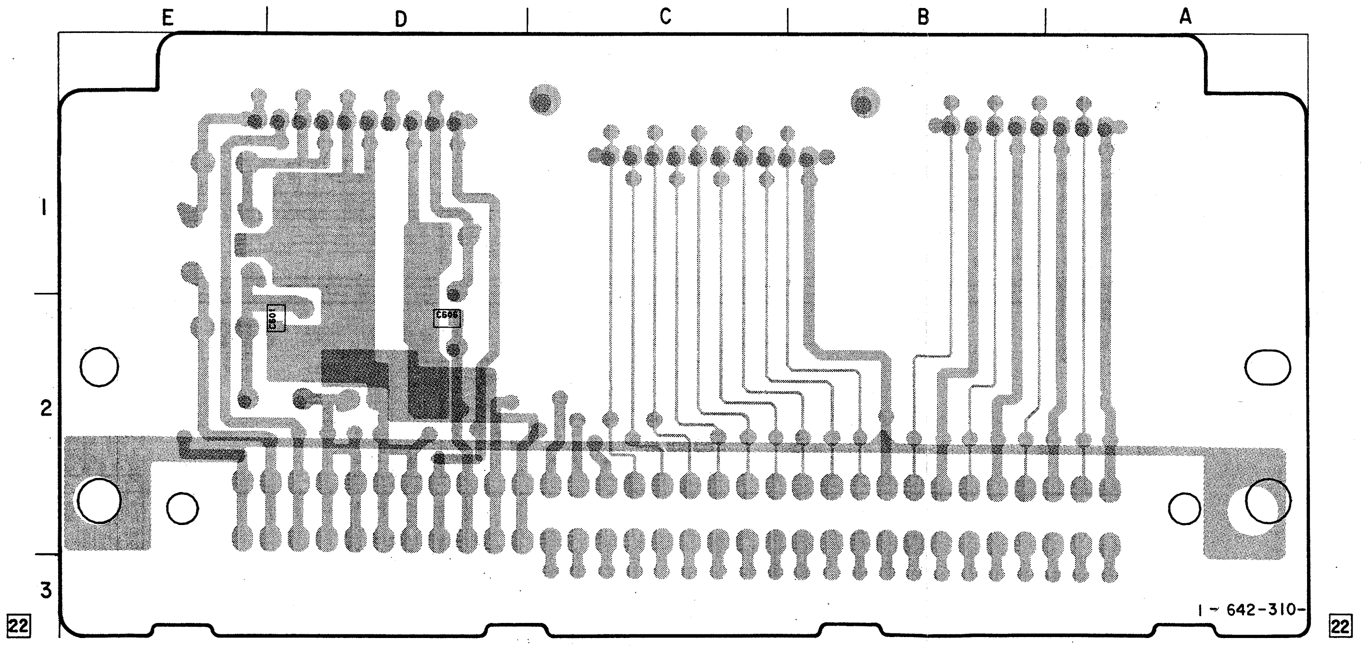
〈 DIODE 〉

D401	8-719-106-79	DIODE	RD13M-B1
D402	8-719-106-79	DIODE	RD13M-B1
D403	8-719-106-08	DIODE	RD6.2M-B2
D404	8-719-106-08	DIODE	RD6.2M-B2
D405	8-719-106-08	DIODE	RD6.2M-B2
D406	8-719-106-08	DIODE	RD6.2M-B2
D407	8-719-106-08	DIODE	RD6.2M-B2
D416	8-719-106-08	DIODE	RD6.2M-B2

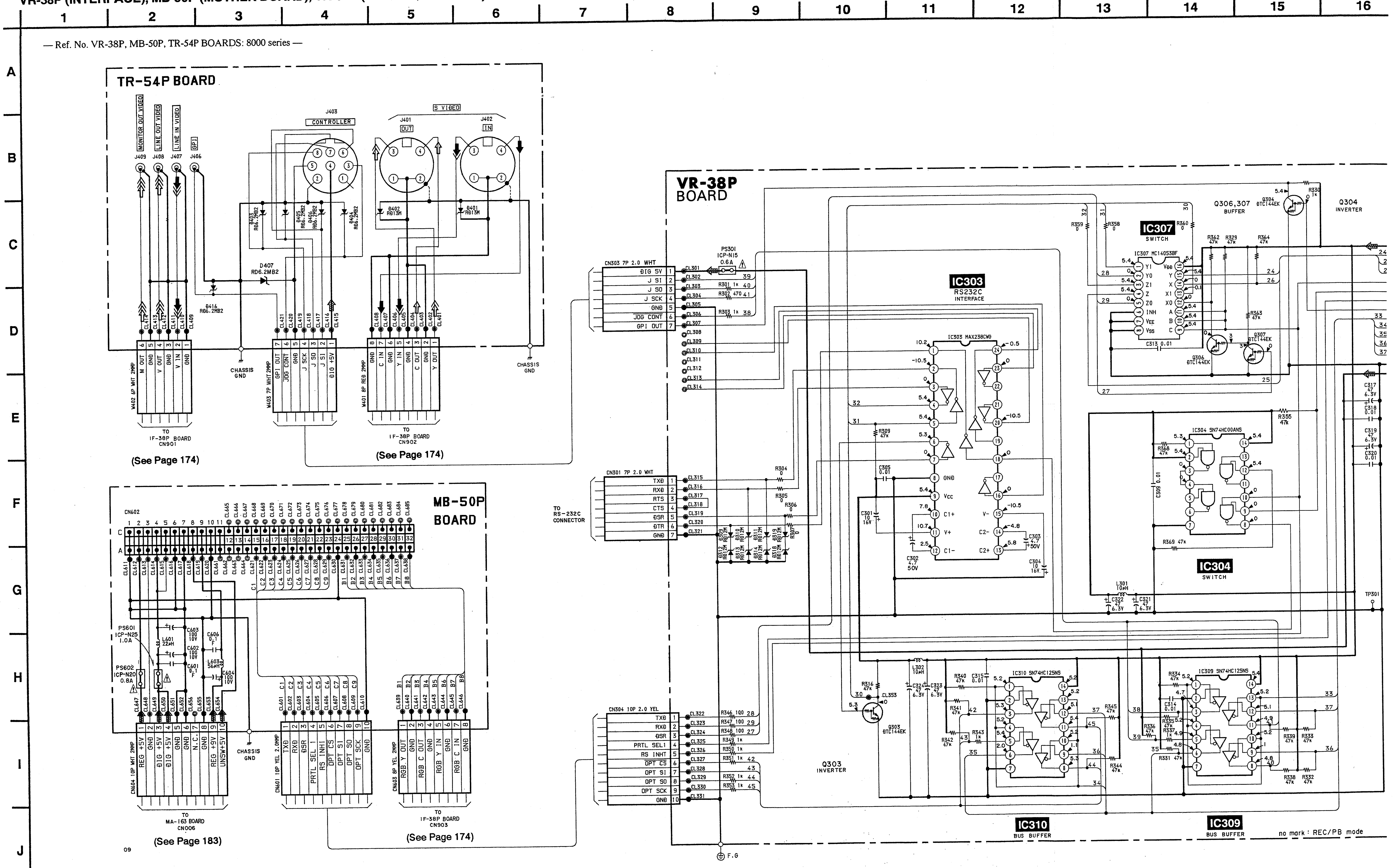
MB-50P BOARD (COMPONENT SIDE)

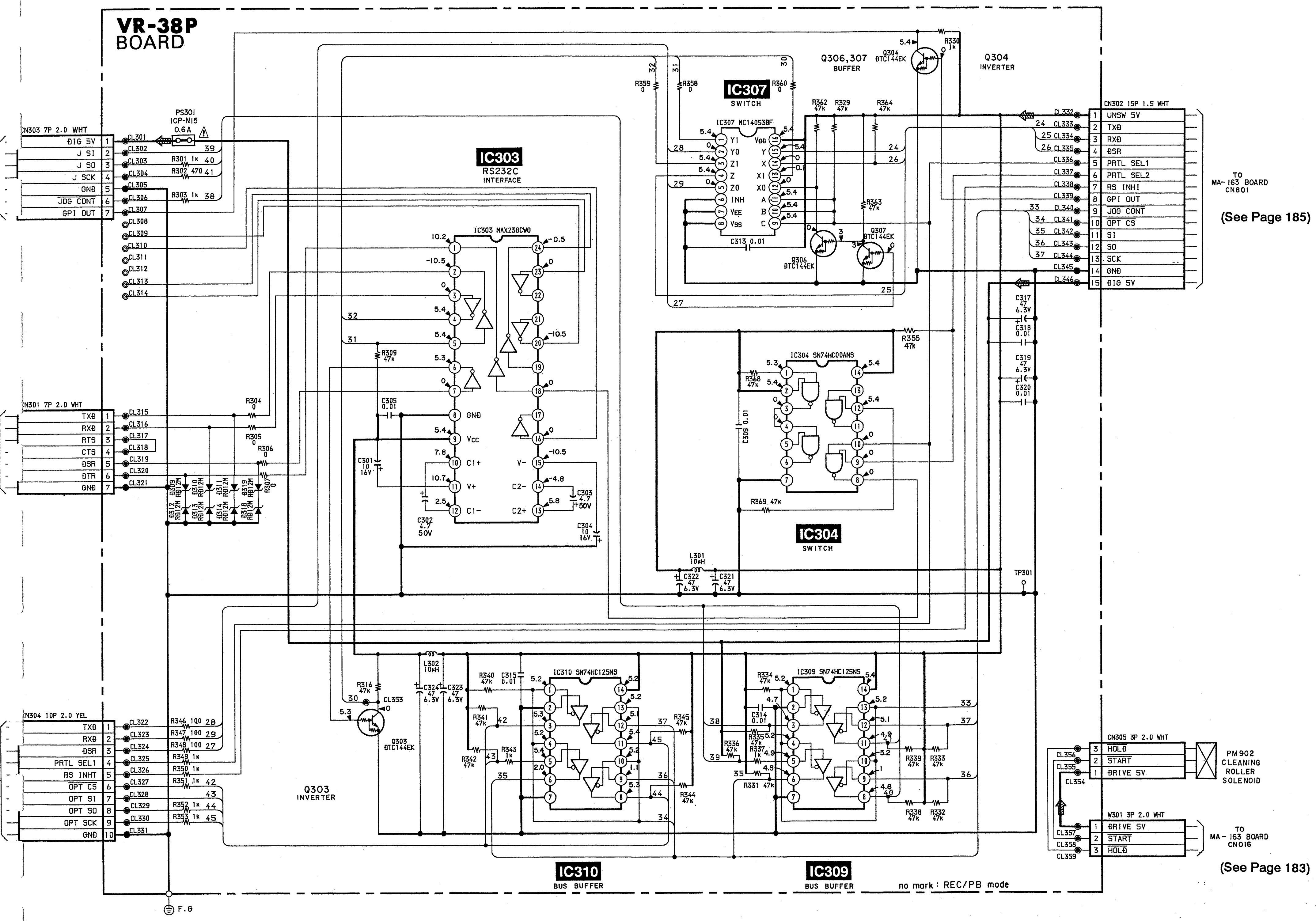

A
B
C
D
E
1
2
3
8
CN603
1
YEL
LP2
10
CN601
1
YEL
LP1
10
CN604
1
WHT
C604
L603
C602
PS601
PS602
C603
L601
A
32
CN602
1
A
C
32
1
C
1-642-310-
22

MB-50P BOARD (CONDUCTOR SIDE)


E
D
C
B
A
1
2
3
C601
C606
1-642-310-
22

— Ref. No. VR-38P, MB-50P, TR-54P BOARDS: 8000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
TR-54P BOARD
MONITOR OUT VIDEO
LINE OUT VIDEO
LINE IN VIDEO
GPI
J409
J408
J407
J406
J403
CONTROLLER
S VIDEO
J401
OUT
J402
IN
D407
RD6.2MB2
D416
RD6.2MB2
D402
RD13M
D401
RD13M
CHASSIS GND
W402 6P WHT 2MMP
W403 7P WHT 2MMP
W401 8P RED 2MMP
TO IF-38P BOARD CN901
(See Page 174)
TO IF-38P BOARD CN902
(See Page 174)
MB-50P BOARD
CN602
PS601
ICP-N25
1.0A
PS602
ICP-N20
0.8A
L601
22μH
L603
56μH
CN604 10P WHT 2MMP
REG +5V
GND
DIG +5V
DIG +5V
GND
GND
N.C.
GND
REG +9V
UNSW+5V
CN601 10P YEL 2.0MMP
TXD
RXD
DSR
PRTL SEL 1
RS INH1
OPT CS
OPT SI
OPT SO
OPT SCK
GND
CN603 8P YEL 2MMP
RGB Y OUT
GND
RGB C OUT
GND
RGB Y IN
GND
RGB C IN
GND
TO MA-163 BOARD CN006
(See Page 183)
TO IF-38P BOARD CN903
(See Page 174)
09
VR-38P BOARD
CN303 7P 2.0 WHT
DIG 5V
J SI
J SO
J SCK
GND
JOG CONT
GPI OUT
PS301
ICP-N15
0.6A
CN301 7P 2.0 WHT
TXD
RXD
RTS
CTS
DSR
DTR
GND
TO RS-232C CONNECTOR
CN304 10P 2.0 YEL
TXD
RXD
DSR
PRTL SEL1
RS INHT
OPT CS
OPT SI
OPT SO
OPT SCK
GND
IC303
RS232C INTERFACE
IC303 MAX238CWG
IC307
SWITCH
IC307 MC14053BF
Q306,307
BUFFER
Q304
INVERTER
Q306
DTC144EK
Q307
DTC144EK
IC304
SWITCH
IC304 SN74HC00ANS
Q303
INVERTER
Q303
DTC144EK
IC310
BUS BUFFER
IC310 SN74HC125NS
IC309
BUS BUFFER
IC309 SN74HC125NS
L301
10μH
L302
10μH
TP301
F.G
no mark : REC/PB mode


VR-38P
BOARD
CN303 7P 2.0 WHT
DIG 5V
J SI
J SO
J SCK
GND
JOG CONT
GPI OUT
PS301
ICP-N15
0.6A
IC303
RS232C
INTERFACE
IC303 MAX238CWG
IC307
SWITCH
IC307 MC14053BF
Q306,307
BUFFER
Q304
INVERTER
Q304
DTC144EK
Q306
DTC144EK
Q307
DTC144EK
CN302 15P 1.5 WHT
UNSW 5V
TXD
RXD
DSR
PRTL SEL1
PRTL SEL2
RS INH1
GPI OUT
JOG CONT
OPT CS
SI
SO
SCK
GND
DIG 5V
TO
MA-163 BOARD
CN801
CN301 7P 2.0 WHT
TXD
RXD
RTS
CTS
DSR
DTR
GND
IC304 SN74HC00ANS
IC304
SWITCH
L301
10μH
TP301
CN304 10P 2.0 YEL
TXD
RXD
DSR
PRTL SEL1
RS INH1
OPT CS
OPT SI
OPT SO
OPT SCK
GND
Q303
DTC144EK
Q303
INVERTER
L302
10μH
IC310 SN74HC125NS
IC309 SN74HC125NS
IC310
BUS BUFFER
IC309
BUS BUFFER
CN305 3P 2.0 WHT
HOLD
START
DRIVE 5V
PM902
CLEANING
ROLLER
SOLENOID
W301 3P 2.0 WHT
DRIVE 5V
START
HOLD
TO
MA-163 BOARD
CN016
F.G
no mark : REC/PB mode

(See Page 185)

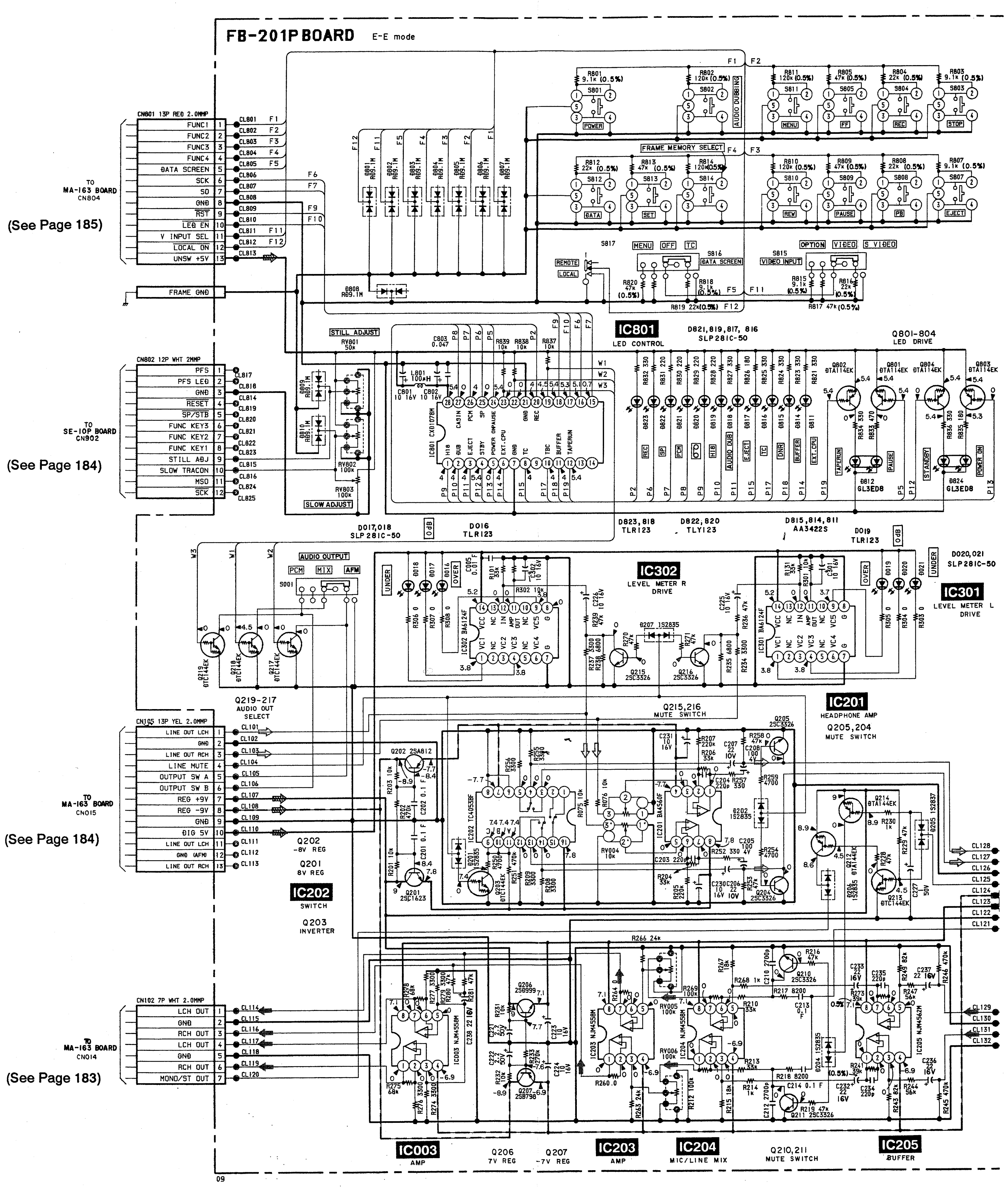
(See Page 183)

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	
PB	⇨	⇨»	⇨»»	

FB-201P (FUNCTION SWITCH, AUDIO OUT SELECT), JB-26P (AUDIO IN/OUT JACK), MJ-42P (MIC JACK, MIC AMP) SCHEMATIC DIAGRAMS

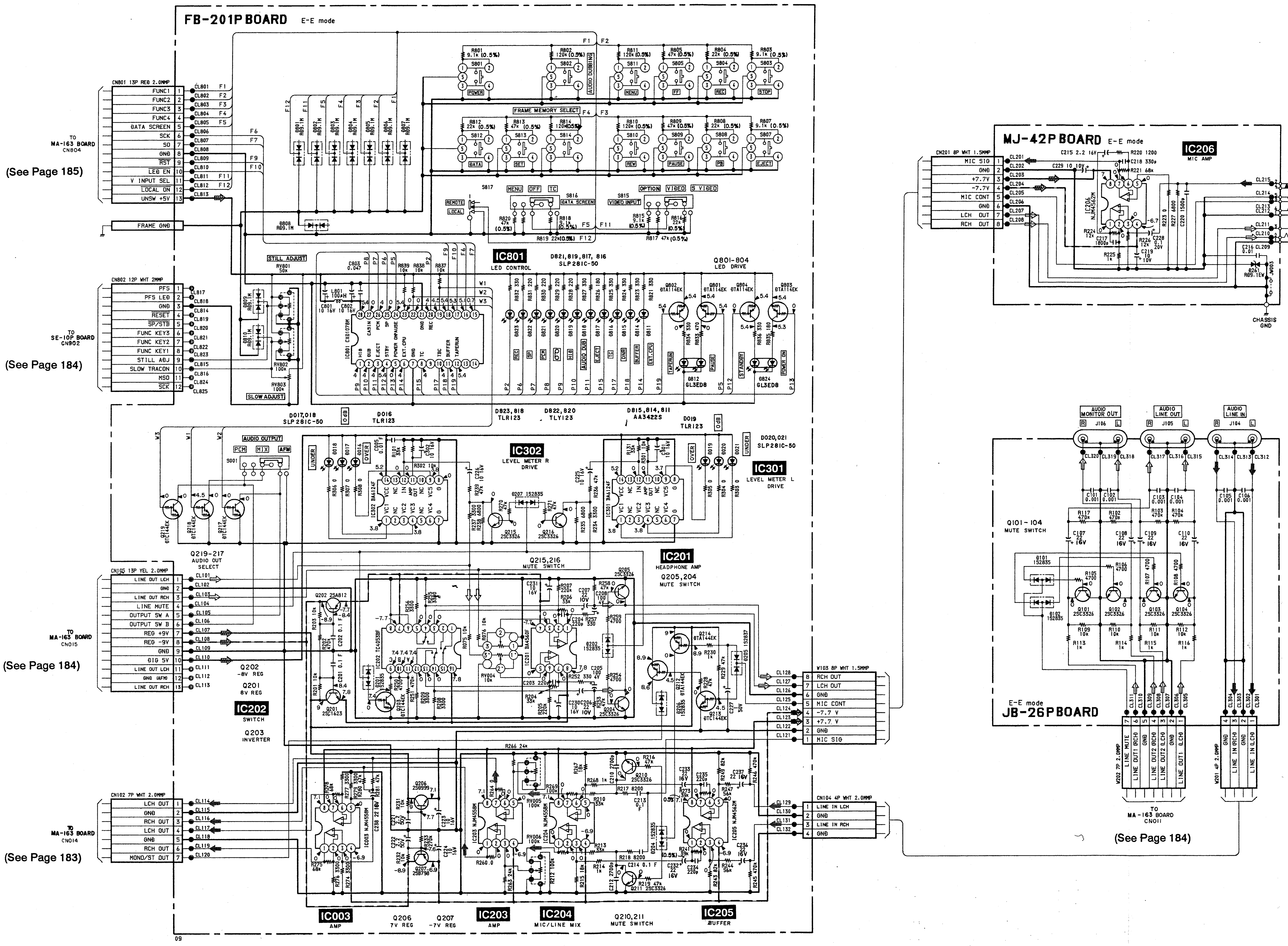
— Ref. No. JB-26P, MJ-42P BOARDS: 10000 series, FB-201P BOARD: 11000 series —


FB-201P BOARD
E-E mode
CN801 13P REG 2.0MMP
FUNC1
FUNC2
FUNC3
FUNC4
DATA SCREEN
SCK
SO
GND
RST
LED EN
V INPUT SEL
LOCAL ON
UNSW +5V
TO MA-163 BOARD CN804
(See Page 185)
FRAME GND
CN802 12P WHT 2MMP
PFS
PFS LED
GND
RESET
SP/STB
FUNC KEY3
FUNC KEY2
FUNC KEY1
STILL ADJ
SLOW TRACON
MSO
SCK
TO SE-10P BOARD CN902
(See Page 184)
CN105 13P YEL 2.0MMP
LINE OUT LCH
GND
LINE OUT RCH
LINE MUTE
OUTPUT SW A
OUTPUT SW B
REG +9V
REG -9V
GND
DIG 5V
LINE OUT LCH
GND (AFM)
LINE OUT RCH
TO MA-163 BOARD CN015
(See Page 184)
CN102 7P WHT 2.0MMP
LCH OUT
GND
RCH OUT
LCH OUT
GND
RCH OUT
MONO/ST OUT
TO MA-163 BOARD CN014
(See Page 183)
POWER
AUDIO DUBBING
MENU
FF
REC
STOP
FRAME MEMORY SELECT
DATA
SET
REW
PAUSE
PB
EJECT
REMOTE
LOCAL
DATA SCREEN
VIDEO INPUT
OPTION VIDEO S VIDEO
STILL ADJUST
SLOW ADJUST
IC801 LED CONTROL
D821,819,817,816 SLP281C-50
Q801-804 LED DRIVE
D823,818 TLR123
D822,820 TLY123
D815,814,811 AA3422S
D019 TLR123
D017,018 SLP281C-50
D016 TLR123
D020,021 SLP281C-50
AUDIO OUTPUT
PCM MIX AFM
IC302 LEVEL METER R DRIVE
IC301 LEVEL METER L DRIVE
Q219-217 AUDIO OUT SELECT
Q215,216 MUTE SWITCH
IC201 HEADPHONE AMP
Q205,204 MUTE SWITCH
Q202 -8V REG
Q201 8V REG
IC202 SWITCH
Q203 INVERTER
IC003 AMP
Q206 7V REG
Q207 -7V REG
IC203 AMP
IC204 MIC/LINE MIX
Q210,211 MUTE SWITCH
IC205 BUFFER

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

D: 11000 series —


FB-201P BOARD E-E mode
CN801 13P RED 2.0MMP
TO MA-163 BOARD CN804
(See Page 185)
FRAME GND
CN802 12P WHT 2MMP
TO SE-10P BOARD CN902
(See Page 184)
CN105 13P YEL 2.0MMP
TO MA-163 BOARD CN015
(See Page 184)
CN102 7P WHT 2.0MMP
TO MA-163 BOARD CN014
(See Page 183)
IC801 LED CONTROL
D821,819,817,816 SLP281C-50
Q801-804 LED DRIVE
STILL ADJUST
SLOW ADJUST
D017,018 SLP281C-50
D016 TLR123
D823,818 TLR123
D822,820 TLY123
D815,814,811 AA3422S
D019 TLR123
D020,021 SLP281C-50
AUDIO OUTPUT
IC302 LEVEL METER R DRIVE
IC301 LEVEL METER L DRIVE
Q219-217 AUDIO OUT SELECT
Q215,216 MUTE SWITCH
IC201 HEADPHONE AMP
Q205,204 MUTE SWITCH
Q202 -8V REG
Q201 8V REG
IC202 SWITCH
Q203 INVERTER
W103 8P WHT 1.5MMP
CN104 4P WHT 2.0MMP
IC003 AMP
Q206 7V REG
Q207 -7V REG
IC203 AMP
IC204 MIC/LINE MIX
Q210,211 MUTE SWITCH
IC205 BUFFER
MJ-42P BOARD E-E mode
CN201 8P WHT 1.5MMP
IC206 MIC AMP
J802 MIC
J801 PHONES
CHASSIS GND
AUDIO MONITOR OUT J106
AUDIO LINE OUT J105
AUDIO LINE IN J104
Q101-104 MUTE SWITCH
JB-26P BOARD E-E mode
W202 7P 2.0MMP
W201 4P 2.0MMP
TO MA-163 BOARD CN011
(See Page 184)

FB-201P (FUNCTION SWITCH, AUDIO OUT SELECT), JB-26P (AUDIO IN/OUT JACK), MJ-42P (MIC JACK, MIC AMP) PRINTED WIRING BOARDS

— Ref. No. JB-26P, MJ-42P BOARDS: 10000 series, FB-201P BOARD: 11000 series —

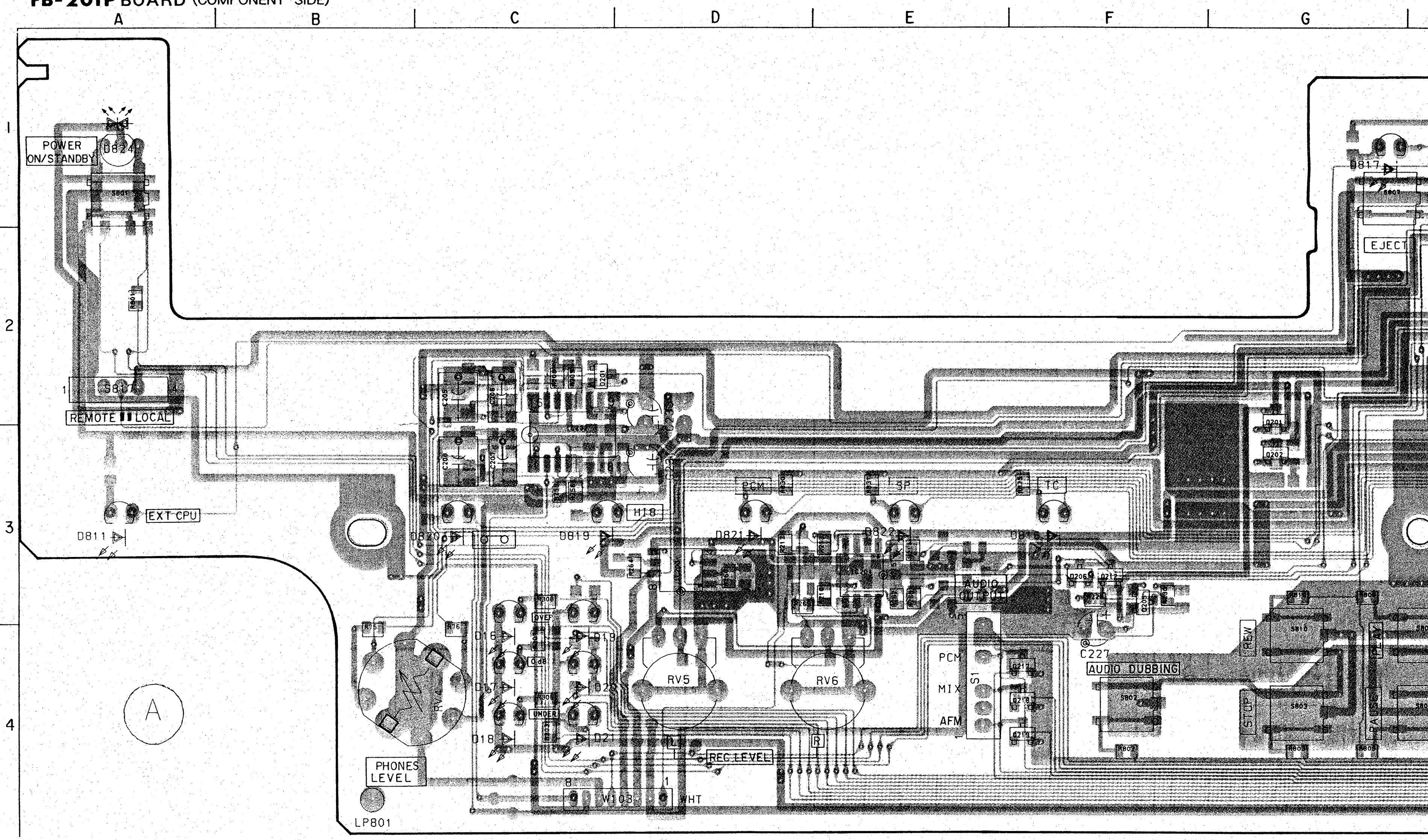
(DIODE)

D016	8-719-812-31	LED	TLR123 (OVER)
D017	8-719-920-05	LED	SLP281C-50 (0dB)
D018	8-719-920-05	LED	SLP281C-50 (UNDER)
D019	8-719-812-31	LED	TLR123 (OVER)
D020	8-719-920-05	LED	SLP281C-50 (0dB)
D021	8-719-920-05	LED	SLP281C-50 (UNDER)
D201	8-719-104-34	DIODE	1S2836
D202	8-719-104-34	DIODE	1S2836
D204	8-719-104-34	DIODE	1S2836
D205	8-719-400-18	DIODE	MA152WK
D206	8-719-104-34	DIODE	1S2836
D207	8-719-104-34	DIODE	1S2836
D801	8-719-106-44	DIODE	RD9. 1M-B2
D802	8-719-106-44	DIODE	RD9. 1M-B2
D803	8-719-106-44	DIODE	RD9. 1M-B2
D804	8-719-106-44	DIODE	RD9. 1M-B2
D805	8-719-106-44	DIODE	RD9. 1M-B2
D806	8-719-106-44	DIODE	RD9. 1M-B2
D807	8-719-106-44	DIODE	RD9. 1M-B2
D808	8-719-106-44	DIODE	RD9. 1M-B2
D809	8-719-106-44	DIODE	RD9. 1M-B2
D810	8-719-106-44	DIODE	RD9. 1M-B2
D811	8-719-918-96	LED	AA3422S (EXT. CPU)
D812	8-719-981-49	DIODE	GL3ED8 (TAPE RUN/PAUSE)
D814	8-719-918-96	LED	AA3422S (BUFFER)
D815	8-719-918-96	LED	AA3422S (DNR)
D816	8-719-920-05	LED	SLP281C-50 (TC)
D817	8-719-920-05	LED	SLP281C-50 (EJECT)
D818	8-719-812-31	LED	TLR123 (AUDIO DUB)
D819	8-719-920-05	LED	SLP281C-50 (Hi8)

FB-201P BOARD (COMPONENT SIDE)

D016	C-4
D017	C-4
D018	C-4
D019	C-4
D020	C-4
D201	C-2
D205	F-3
D206	F-3
D207	H-2
D811	A-3
D812	L-3
D814	N-3
D815	M-3
D816	E-3
D817	J-1
D818	J-3
D819	C-3
D820	C-3
D821	D-3
D822	E-3
D823	K-3
D824	A-1
IC003	J-2
IC202	C-3
IC203	D-3
IC204	E-3
IC205	K-2
IC301	I-2
IC302	H-2
IC801	M-2
Q201	G-3
Q202	G-3
Q206	I-2
Q207	J-2
Q212	F-3
Q217	F-4
Q218	F-4
Q219	F-4

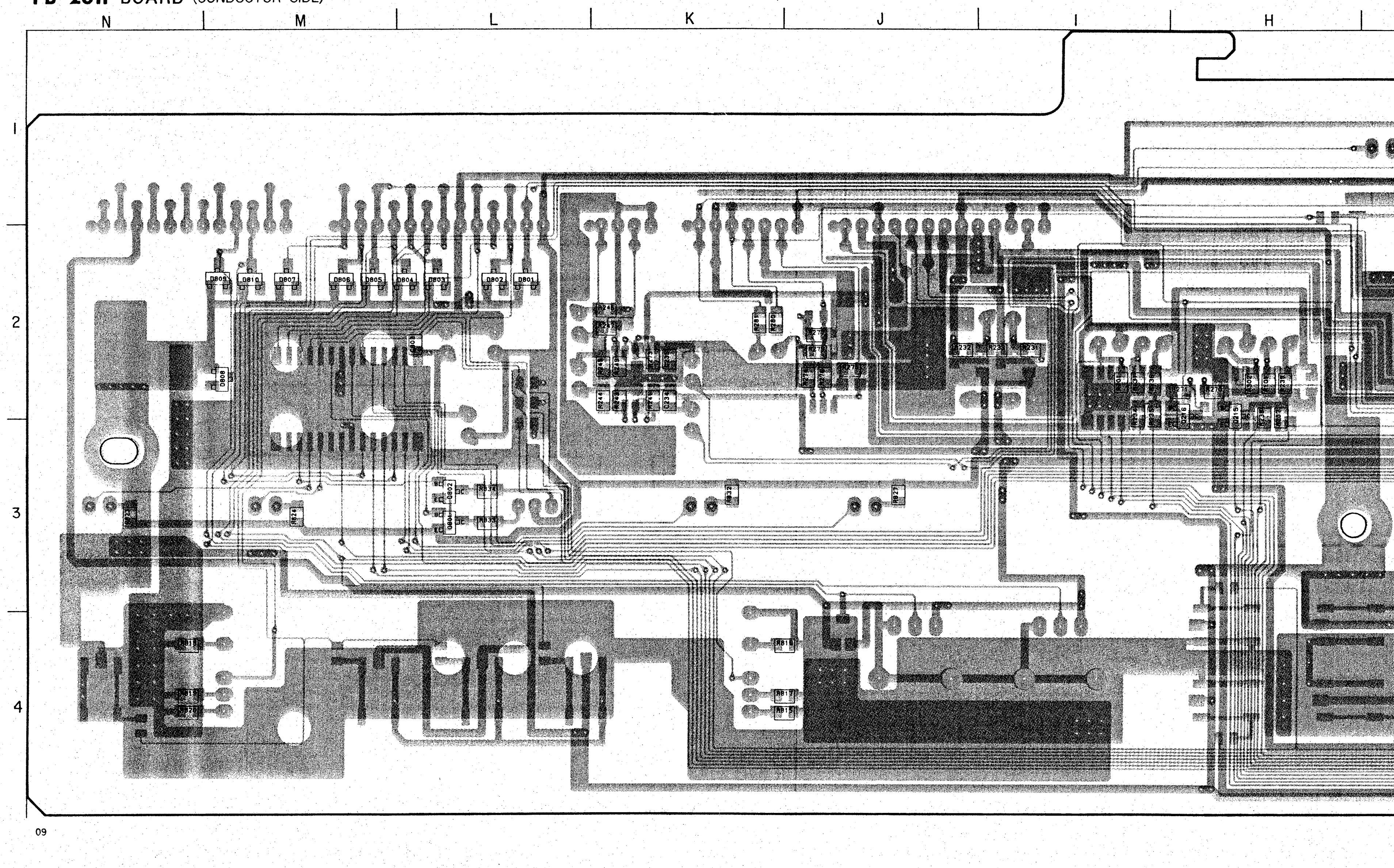
FB-201P BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
1
2
3
4
POWER ON/STANDBY
D824
1
REMOTE LOCAL
EXT CPU
D811
A
D820
D819
H18
D821
D822
PCM
SP
TC
AUDIO
C227
AUDIO DUBBING
PCM
MIX
AFM
S1
RV5
RV6
REC LEVEL
OVER
0dB
UNDER
D16
D18
PHONES LEVEL
LP801
W103
WHT
8
1
D817
EJECT
REW
STOP

FB-201P BOARD (CONDUCTOR SIDE)

D202	C-3
D204	E-3
D801	L-2
D802	L-2
D803	L-2
D804	L-2
D805	M-2
D806	M-2
D807	M-2
D808	M-2
D809	M-2
D810	M-2
IC201	C-3
Q203	C-2
Q204	C-2
Q205	C-3
Q210	E-3
Q211	E-3
Q213	F-3
Q214	F-3
Q215	H-2
Q216	H-2
Q801	L-3
Q802	L-3
Q803	A-1
Q804	A-1

FB-201P BOARD (CONDUCTOR SIDE)


N
M
L
K
J
I
H
1
2
3
4
09

CPU)
RUN/PAUSE)
R)

CT)
UB)
)

D820	8-719-812-32	LED	TLY123 (📼)
D821	8-719-920-05	LED	SLP281C-50 (PCM)
D822	8-719-812-32	LED	TLY123 (SP)
D823	8-719-812-31	LED	TLR123 (REC)
D824	8-719-981-49	DIODE	GL3ED8 (POWER ON/STANDBY)

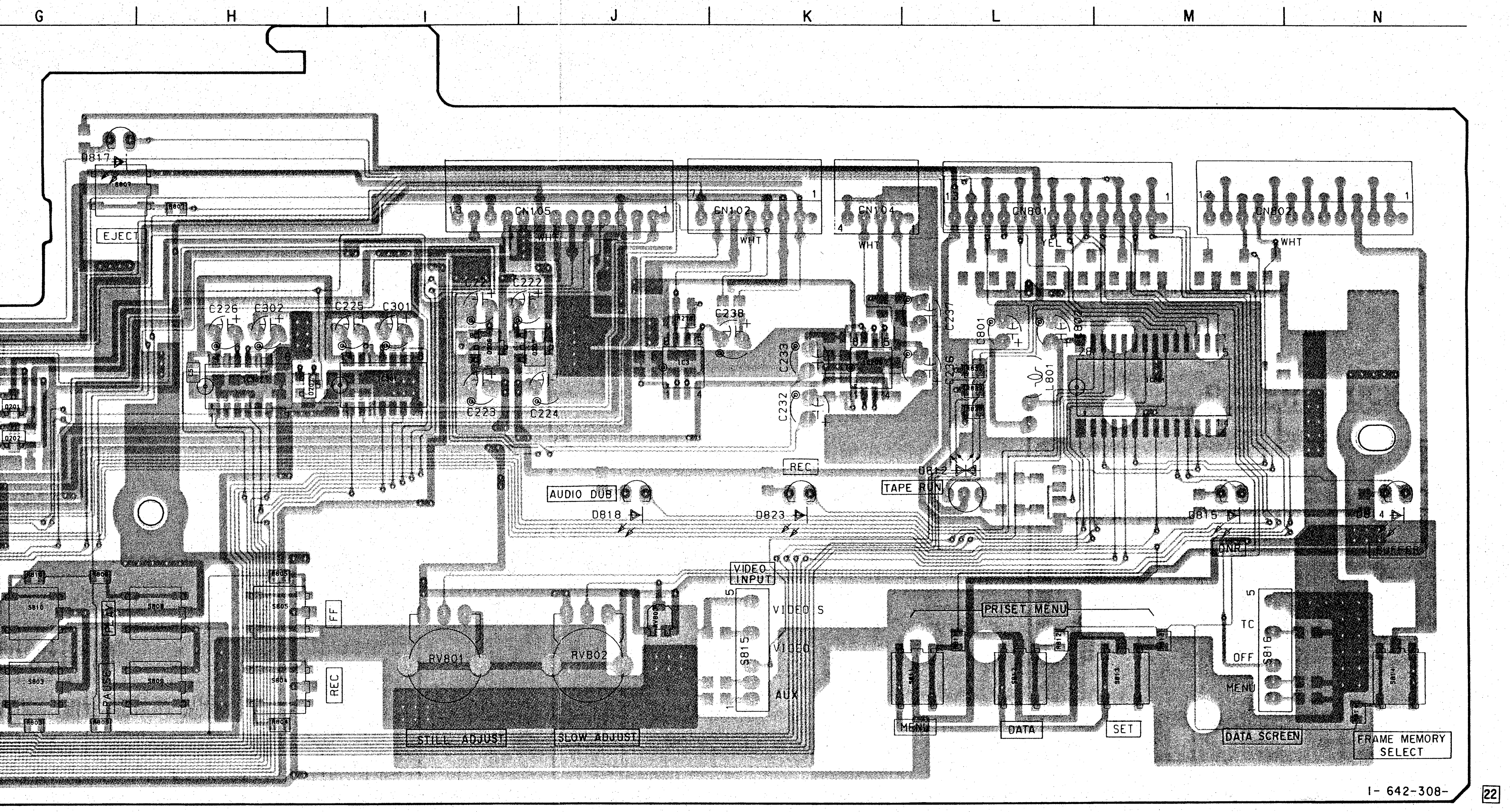
〈 IC 〉

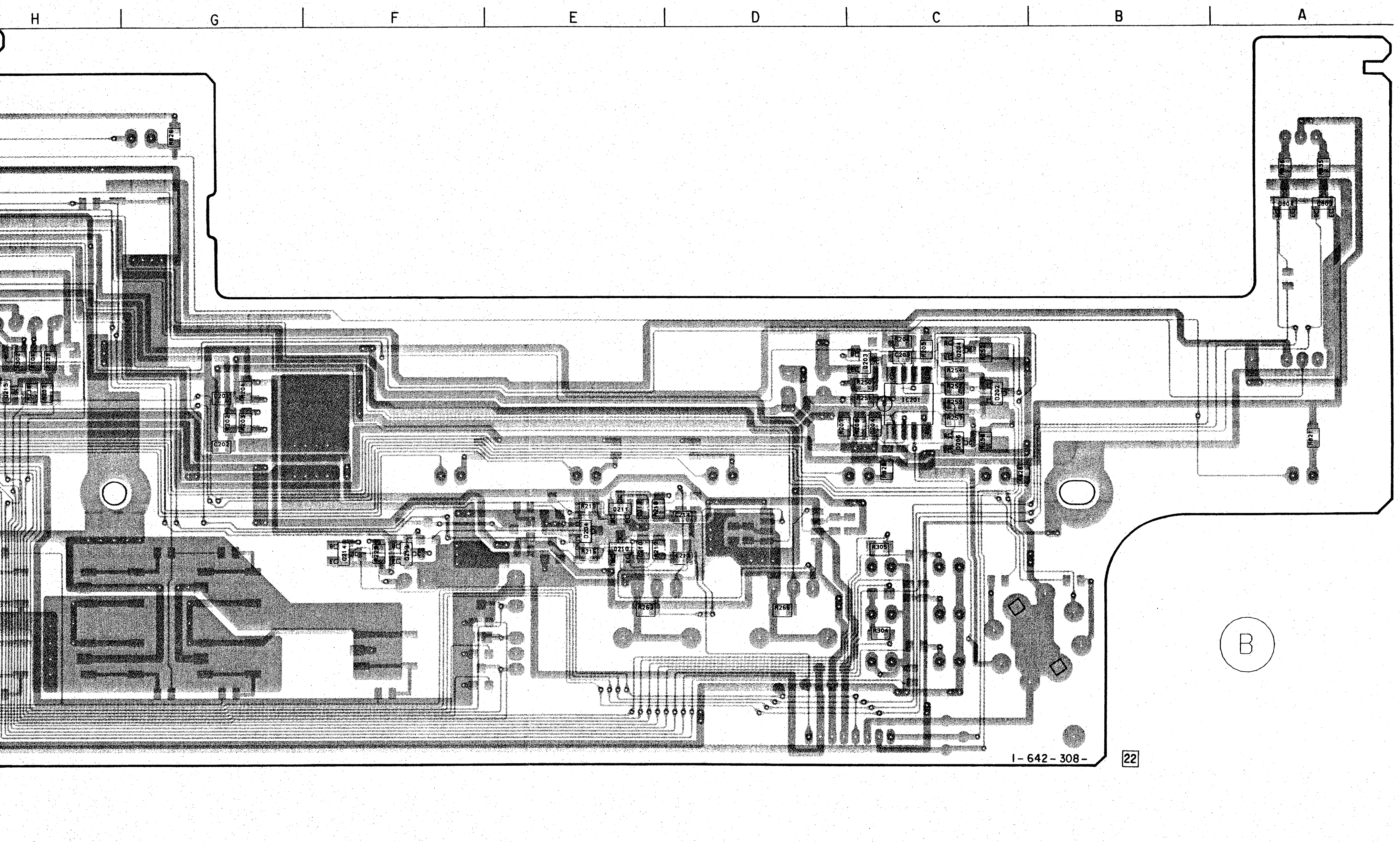
IC003	8-759-981-92	IC	RC4558M
IC201	8-759-924-46	IC	BA4560F
IC202	8-759-300-71	IC	HD14053BFP
IC203	8-759-981-92	IC	RC4558M
IC204	8-759-981-92	IC	RC4558M
IC205	8-759-700-62	IC	NJM4562D
IC301	8-759-057-46	IC	BA6124F
IC302	8-759-057-46	IC	BA6124F
IC801	8-759-937-21	IC	CXD1078M

〈 TRANSISTOR 〉

Q201	8-729-100-66	TRANSISTOR	2SC1623-L6
Q202	8-729-216-22	TRANSISTOR	2SA1162-G
Q203	8-729-901-01	TRANSISTOR	DTC144EK
Q204	8-729-202-38	TRANSISTOR	2SC3326N-A
Q205	8-729-202-38	TRANSISTOR	2SC3326N-A
Q206	8-729-140-75	TRANSISTOR	2SD999-CLCK
Q207	8-729-101-07	TRANSISTOR	2SB798-DL
Q210	8-729-202-38	TRANSISTOR	2SC3326N-A
Q211	8-729-202-38	TRANSISTOR	2SC3326N-A
Q212	8-729-901-06	TRANSISTOR	DTA144EK

Q213	8-729-901-01	TRANSI
Q214	8-729-901-06	TRANSI
Q215	8-729-202-38	TRANSI
Q216	8-729-202-38	TRANSI
Q217	8-729-901-01	TRANSI
Q218	8-729-901-01	TRANSI
Q219	8-729-901-01	TRANSI
Q801	8-729-901-04	TRANSI
Q802	8-729-901-04	TRANSI
Q803	8-729-901-04	TRANSI
Q804	8-729-901-04	TRANS


G
H
I
J
K
L
M
N
D817
EJECT
CN105
CN102
CN104
CN801
CN802
WHT
YEL
C226
C302
C225
C301
C221
C222
C223
C224
C238
C233
C232
C237
C236
C801
L801
REC
AUDIO DUB
D818
D823
TAPE RUN
D815
FF
REC
VIDEO INPUT
VIDEO S
VIDEO
AUX
S815
RV801
RV802
STILL ADJUST
SLOW ADJUST
PRISET MENU
MENU
DATA
SET
DATA SCREEN
FRAME MEMORY SELECT
TC
OFF
MENU
S816
1-642-308-
22


H
G
F
E
D
C
B
A
B
1-642-308-
22

IC AMP) PRINTED WIRING BOARDS

RD9. 1M-B2
RD9. 1M-B2
AA3422S (EXT. CPU)
GL3ED8 (TAPE RUN/PAUSE)
AA3422S (BUFFER)

AA3422S (DNR)
SLP281C-50 (TC)
SLP281C-50 (EJECT)
TLR123 (AUDIO DUB)
SLP281C-50 (Hi8)

D820	8-719-812-32	LED	TLY123 (📼)
D821	8-719-920-05	LED	SLP281C-50 (PCM)
D822	8-719-812-32	LED	TLY123 (SP)
D823	8-719-812-31	LED	TLR123 (REC)
D824	8-719-981-49	DIODE	GL3ED8 (POWER ON/STANDBY)

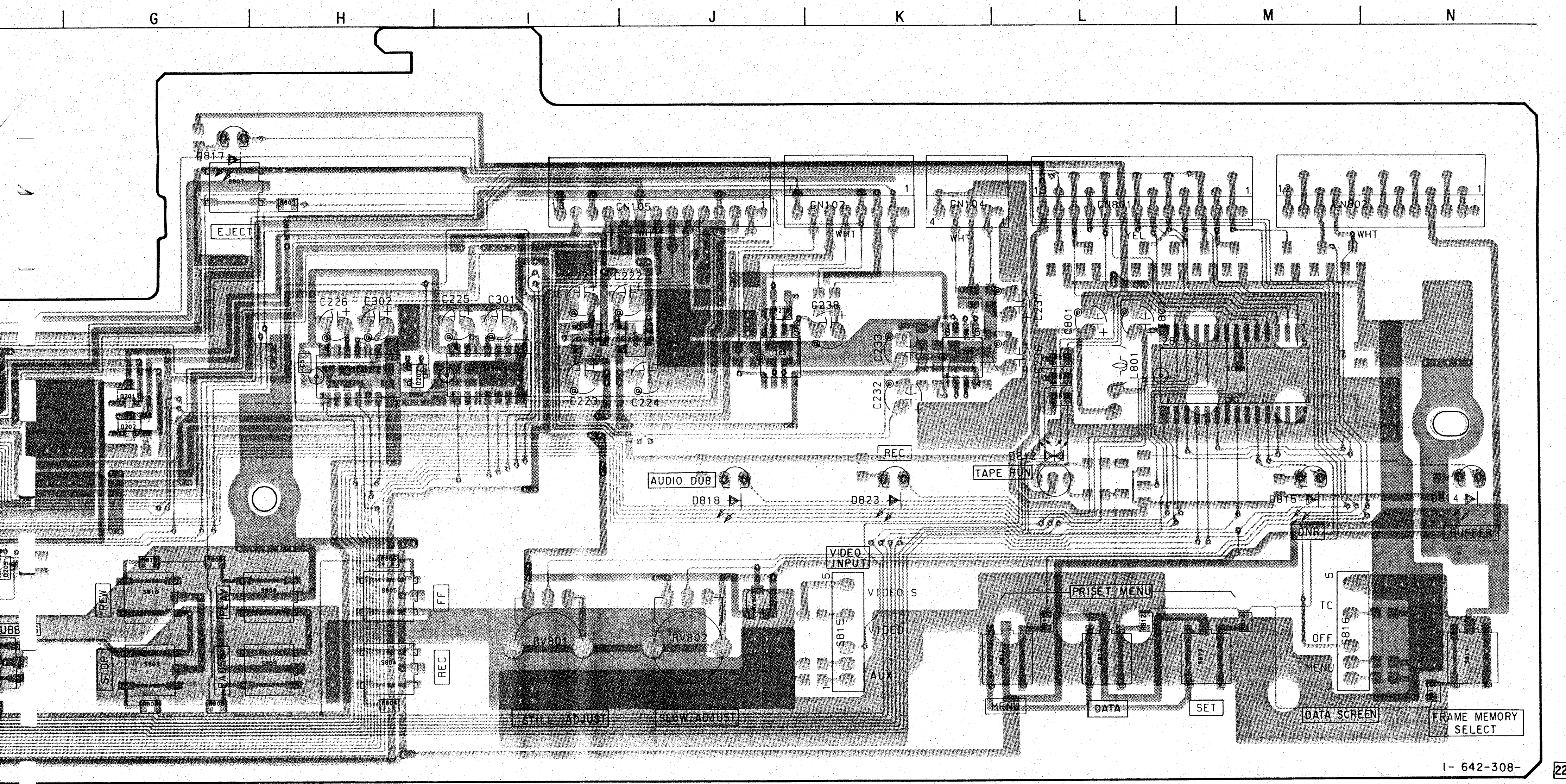
〈 IC 〉

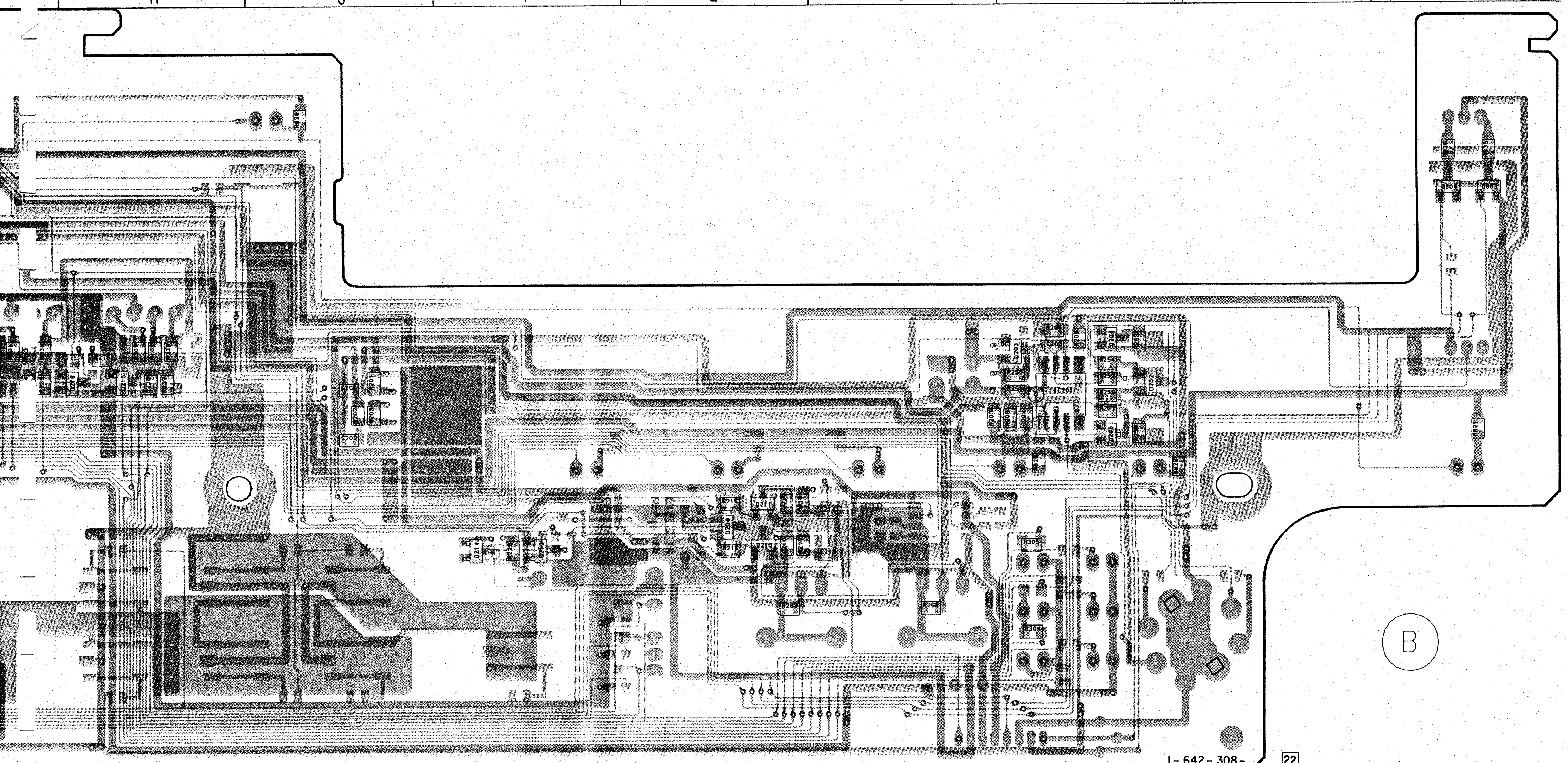
IC003	8-759-981-92	IC	RC4558M
IC201	8-759-924-46	IC	BA4560F
IC202	8-759-300-71	IC	HD14053BFP
IC203	8-759-981-92	IC	RC4558M
IC204	8-759-981-92	IC	RC4558M
IC205	8-759-700-62	IC	NJM4562D
IC301	8-759-057-46	IC	BA6124F
IC302	8-759-057-46	IC	BA6124F
IC801	8-759-937-21	IC	CXD1078M

〈 TRANSISTOR 〉

Q201	8-729-100-66	TRANSISTOR	2SC1623-L6
Q202	8-729-216-22	TRANSISTOR	2SA1162-G
Q203	8-729-901-01	TRANSISTOR	DTC144EK
Q204	8-729-202-38	TRANSISTOR	2SC3326N-A
Q205	8-729-202-38	TRANSISTOR	2SC3326N-A
Q206	8-729-140-75	TRANSISTOR	2SD999-CLCK
Q207	8-729-101-07	TRANSISTOR	2SB798-DL
Q210	8-729-202-38	TRANSISTOR	2SC3326N-A
Q211	8-729-202-38	TRANSISTOR	2SC3326N-A
Q212	8-729-901-06	TRANSISTOR	DTA144EK

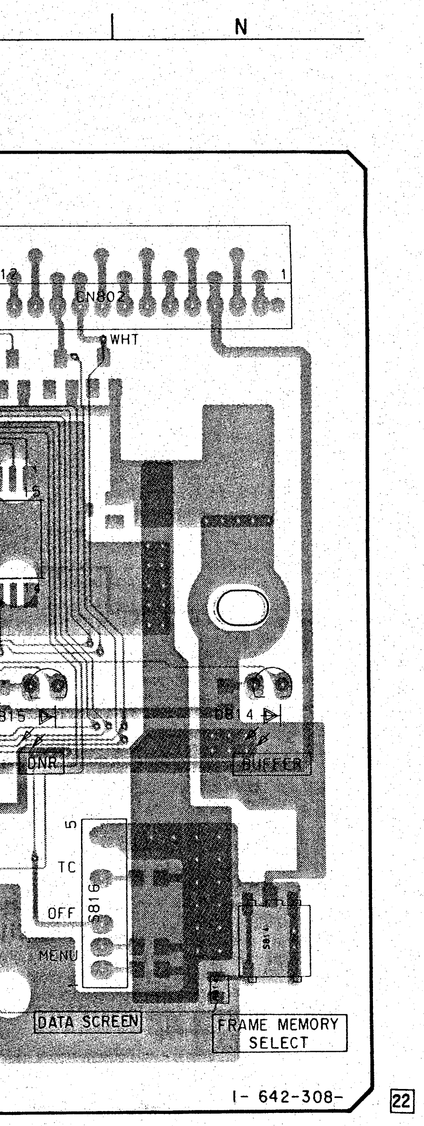
Q213	8-729-
Q214	8-729-
Q215	8-729-
Q216	8-729-
Q217	8-729-
Q218	8-729
Q219	8-729
Q801	8-729
Q802	8-729
Q803	8-729
Q804	8-729


G
H
I
J
K
L
M
N
EJECT
D817
CN105
CN102
CN104
CN801
CN802
WHT
C226
C302
C225
C301
C222
C223
C224
C238
C233
C232
C237
C236
C801
L801
REC
TAPE RUN
D812
AUDIO DUB
D818
D823
D815
D814
DNR
BUFFER
VIDEO INPUT
VIDEO S
VIDEO
AUX
S815
PRISET MENU
TC
OFF
MENU
S816
REW
STOP
PLAY
PAUSE
FF
REC
RV801
RV802
STILL ADJUST
SLOW ADJUST
MENU
DATA
SET
DATA SCREEN
FRAME MEMORY SELECT
1- 642-308-
22


H
G
F
E
D
C
B
A
B
1- 642-308-
22

STOR 〉

OR	2SC1623-L6	Q213	8-729-901-01	TRANSISTOR	DTC144EK
OR	2SA1162-G	Q214	8-729-901-06	TRANSISTOR	DTA144EK
OR	DTC144EK	Q215	8-729-202-38	TRANSISTOR	2SC3326N-A
OR	2SC3326N-A	Q216	8-729-202-38	TRANSISTOR	2SC3326N-A
OR	2SC3326N-A	Q217	8-729-901-01	TRANSISTOR	DTC144EK
OR	2SD999-CLCK	Q218	8-729-901-01	TRANSISTOR	DTC144EK
OR	2SB798-DL	Q219	8-729-901-01	TRANSISTOR	DTC144EK
OR	2SC3326N-A	Q801	8-729-901-04	TRANSISTOR	DTA114EK
OR	2SC3326N-A	Q802	8-729-901-04	TRANSISTOR	DTA114EK
OR	DTA144EK	Q803	8-729-901-04	TRANSISTOR	DTA114EK
		Q804	8-729-901-04	TRANSISTOR	DTA114EK

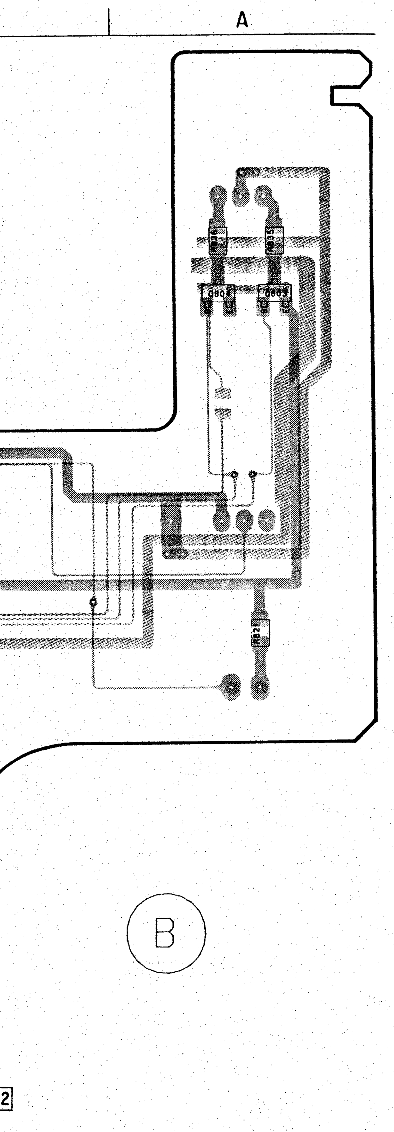

N
CN802
1
WHT
DNR
BUFFER
5
TC
OFF
MENU
DATA SCREEN
FRAME MEMORY SELECT
1-642-308-
22

〈 DIODE 〉

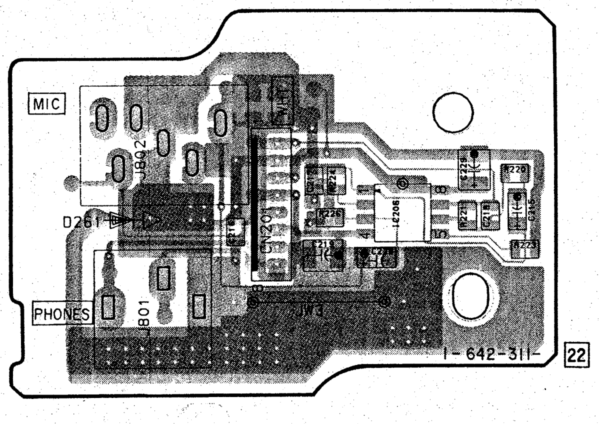
D261	8-719-108-12	DIODE	RD9.1EW

〈 IC 〉

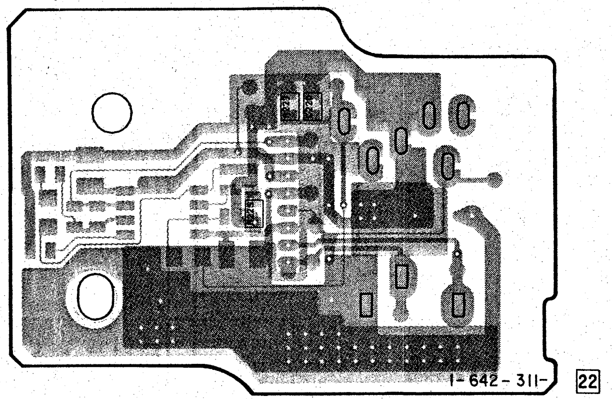
IC206	8-759-700-62	IC	NJM4562D


A
Q803
Q802
B
2

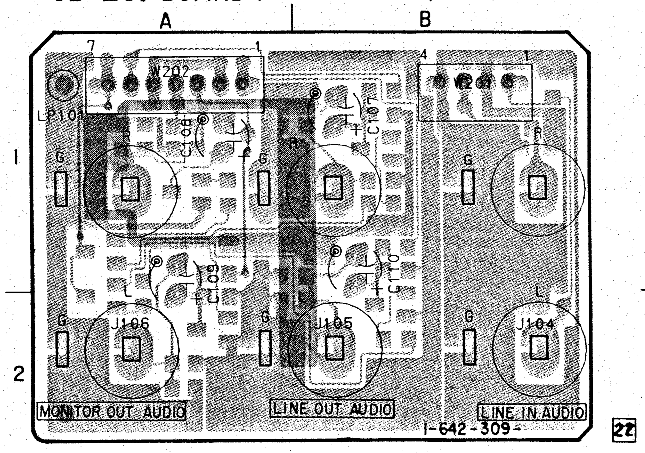
MJ-42P BOARD (COMPONENT SIDE)


MIC
D261
IC206
PHONES
1-642-311-
22

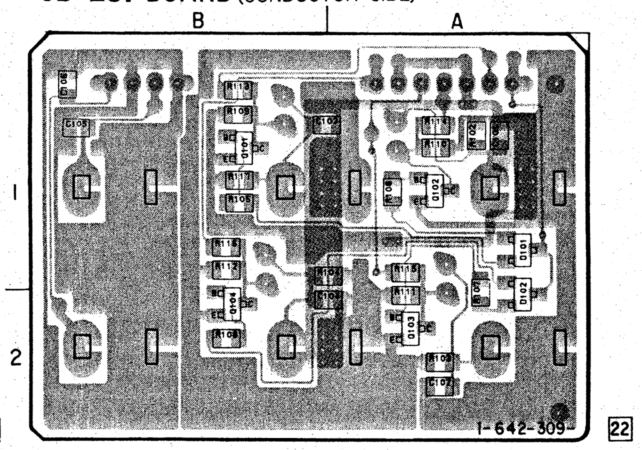
MJ-42P BOARD (CONDUCTOR SIDE)



JB-26P BOARD (COMPONENT SIDE)


A
B
7
1
4
LP101
C104
C107
C109
C110
G
R
L
J106
J105
J104
1
2
MONITOR OUT AUDIO
LINE OUT AUDIO
LINE IN AUDIO
1-642-309-
22

JB-26P BOARD (CONDUCTOR SIDE)


B
A
1
2
D101
D102
Q101
Q102
Q103
Q104
1-642-309-
22

JB-26P BOARD (CONDUCTOR SIDE)

D101	A-1
D102	A-1
Q101	B-1
Q102	A-1
Q103	A-2
Q104	B-2

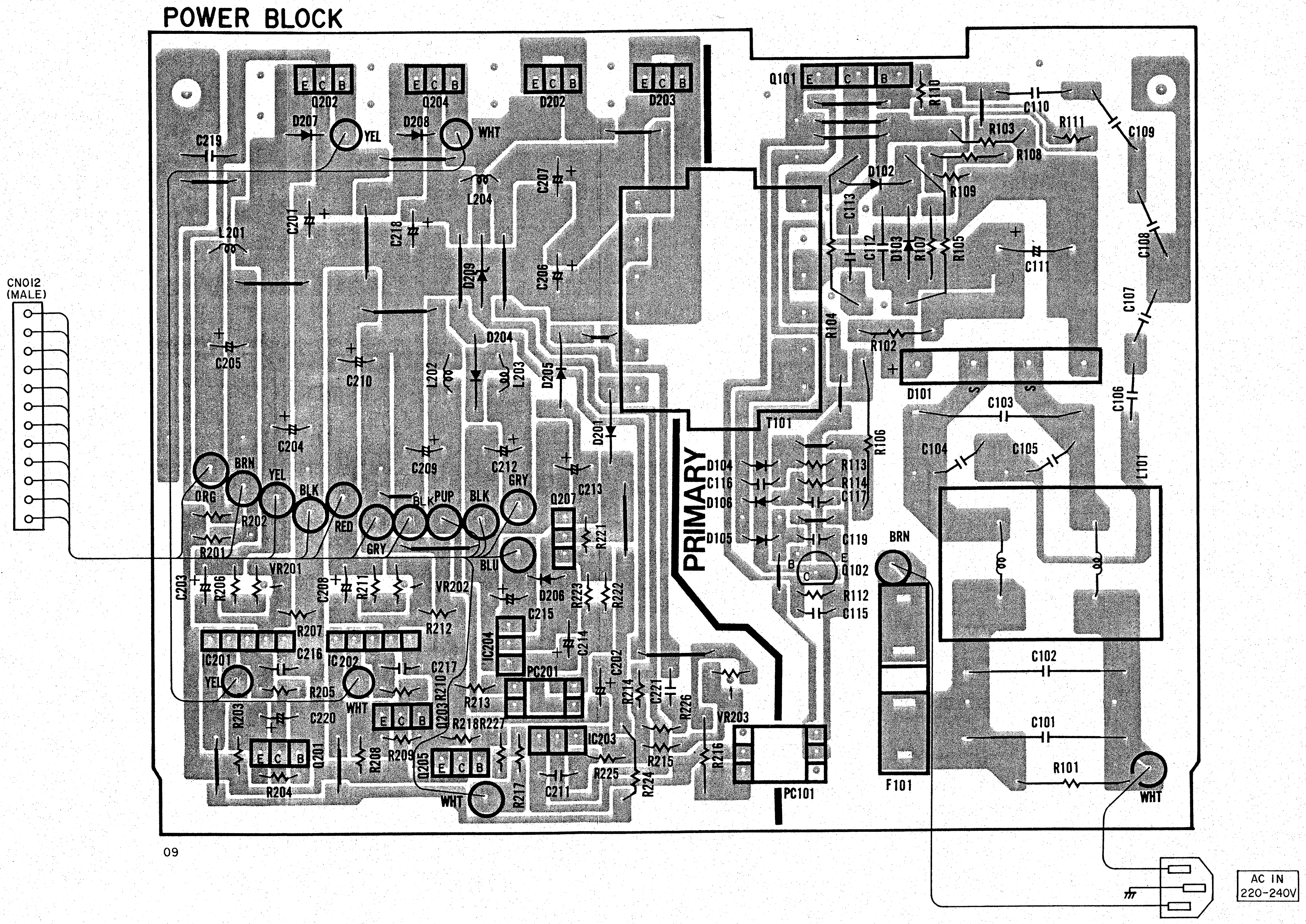
〈 DIODE 〉

D101	8-719-104-34	DIODE	1S2836
D102	8-719-104-34	DIODE	1S2836

〈 TRANSISTOR 〉

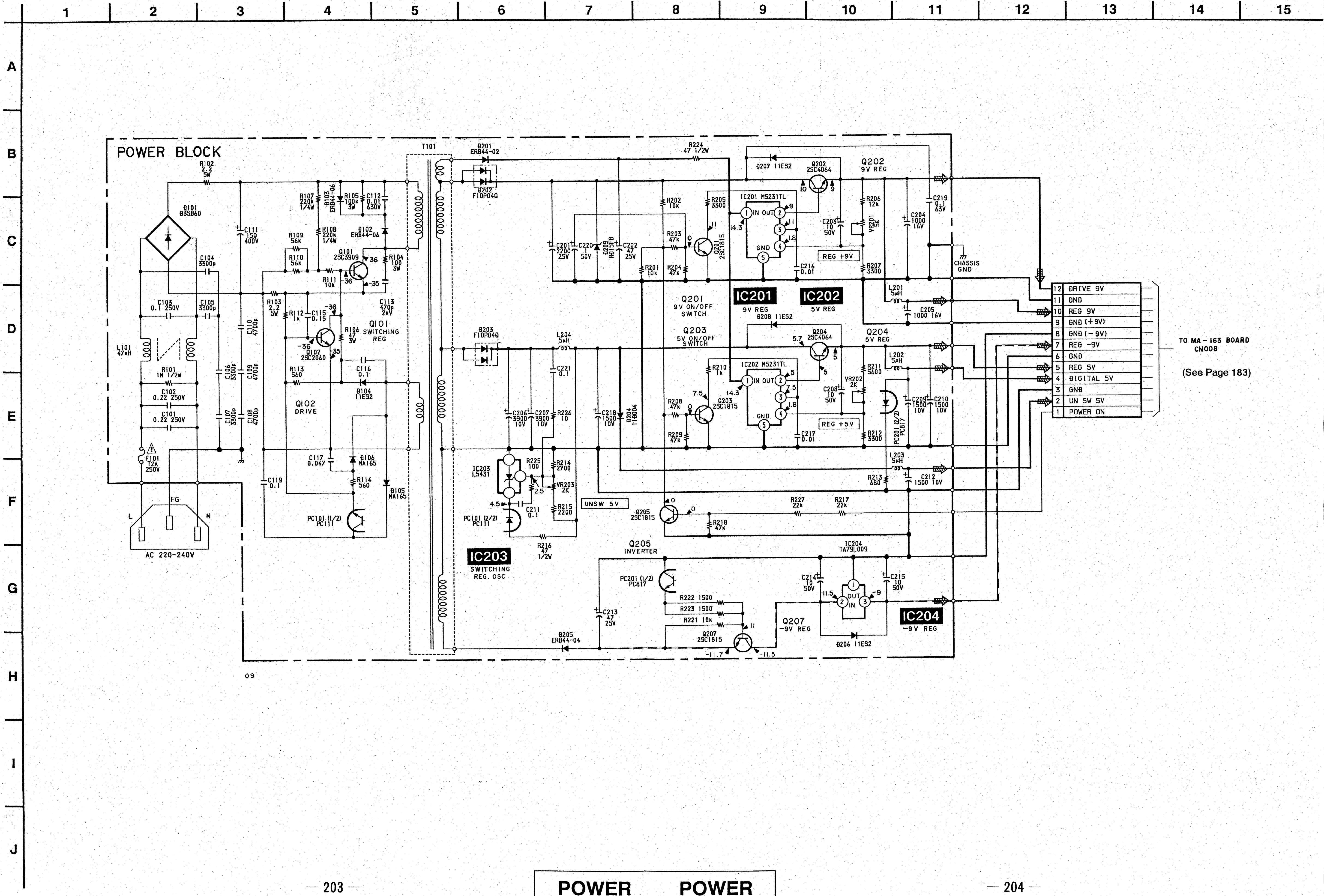
Q101	8-729-202-38	TRANSISTOR	2SC3326N-A
Q102	8-729-202-38	TRANSISTOR	2SC3326N-A
Q103	8-729-202-38	TRANSISTOR	2SC3326N-A
Q104	8-729-202-38	TRANSISTOR	2SC3326N-A

POWER BLOCK (POWER) PRINTED WIRING BOARD



POWER BLOCK
CN012 (MALE)
Q202
Q204
D202
D203
Q101
E C B
D207
D208
YEL
WHT
C219
L204
C207
C201
C218
L201
D209
C206
C205
C210
L202
D204
L203
D205
D201
C204
C209
C212
GRY
Q207
C213
BRN
ORG
YEL
BLK
RED
BLK
PUP
BLK
R202
R201
GRY
BLU
VR201
VR202
C203
R206
C208
R211
D206
R223
R222
R221
C215
R207
R212
IC204
C214
C202
IC201
C216
IC202
C217
PC201
R210
R213
R214
C221
R226
VR203
R205
C220
R203
Q201
R204
R208
R209
Q203
R218
R227
Q205
IC203
R225
R215
R216
R224
R217
C211
PC101
PRIMARY
T101
D104
C116
D106
D105
R113
R114
C117
C119
Q102
R112
C115
R106
R104
R102
D101
C103
C104
C105
C106
C107
C108
C109
C110
C111
C112
C113
D102
D103
R103
R107
R105
R108
R109
R110
R111
L101
C102
C101
R101
F101
BRN
WHT
09
AC IN 220-240V

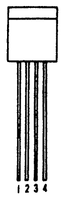
POWER BLOCK (POWER) SCHEMATIC DIAGRAM



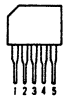
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
POWER BLOCK
R102 2.2 5W
D101 D3SB60
C111 150 400V
C104 3300p
C103 0.1 250V
C105 3300p
L101 47mH
R101 1M 1/2W
C102 0.22 250V
C101 0.22 250V
C106 3300p
C107 3300p
C108 4700p
C109 4700p
C110 4700p
F101 T2A 250V
FG
L
N
AC 220-240V
R107 220k 1/4W
D103 ERB44-06
R105 100k 3W
C112 0.01 630V
R109 56k
R110 56k
R108 220k 1/4W
D102 ERB44-06
Q101 2SC3909
R104 100 3W
R111 10k
C113 470p 2kV
R103 2.2 5W
R112 1k
C115 0.15
Q101 SWITCHING REG
R106 47 3W
Q102 2SC2060
R113 560
C116 0.1
D104 11ES2
Q102 DRIVE
C117 0.047
D106 MA165
R114 560
D105 MA165
C119 0.1
PC101 (1/2) PC111
T101
D201 ERB44-02
D202 F10P04Q
D203 F10P04Q
L204 5μH
C221 0.1
C206 3900 10V
C207 3900 10V
R226 10
C218 1500 10V
D204 11ES04
IC203 L5431
R225 100
R214 2700
VR203 2K
R215 2200
C211 0.1
PC101 (2/2) PC111
R216 47 1/2W
IC203
SWITCHING REG. OSC
UNSW 5V
R224 47 1/2W
D207 11ES2
Q202 2SC4064
Q202 9V REG
R202 10k
R205 3300
IC201 M5231TL
IN
OUT
GND
C201 2200 25V
C220 1 50V
D209 RD15FB
C202 47 25V
R203 47k
R204 47k
R201 10k
Q201 2SC1815
C203 10 50V
VR201 5K
R206 12k
C204 1000 16V
C219 0.1 63V
CHASSIS GND
REG +9V
C216 0.01
R207 3300
Q201 9V ON/OFF SWITCH
IC201 9V REG
IC202 5V REG
L201 5μH
C205 1000 16V
Q203 5V ON/OFF SWITCH
D208 11ES2
D204 2SC4064
Q204 5V REG
R210 1k
IC202 M5231TL
R211 5600
L202 5μH
VR202 2K
C208 10 50V
Q203 2SC1815
R208 47k
R209 47k
REG +5V
C217 0.01
R212 3300
PC201 (2/2) PC817
C209 1500 10V
C210 1500 10V
L203 5μH
R213 680
C212 1500 10V
Q205 2SC1815
R227 22k
R217 22k
R218 47k
Q205 INVERTER
PC201 (1/2) PC817
R222 1500
R223 1500
R221 10k
C213 47 25V
D205 ERB44-04
Q207 2SC1815
Q207 -9V REG
IC204 TA79L009
C214 10 50V
C215 10 50V
D206 11ES2
IC204 -9V REG
12 DRIVE 9V
11 GND
10 REG 9V
9 GND (+9V)
8 GND (-9V)
7 REG -9V
6 GND
5 REG 5V
4 DIGITAL 5V
3 GND
2 UN SW 5V
1 POWER ON
TO MA-163 BOARD CN008
(See Page 183)
09

4-3. SEMICONDUCTORS

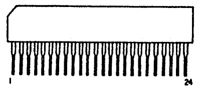
AN607P
AN608P



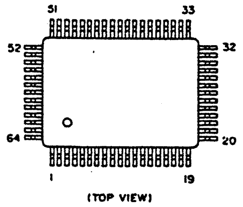
BA401
TA7060AP



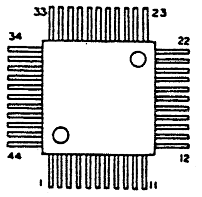
BA7036LS



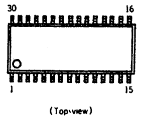
CF77499PG
CXP5048H-645Q
CXP5048H-280Q
CXP5048H-283Q
μPD75106G-595-1B


51
33
52
32
64
20
1
19
(TOP VIEW)

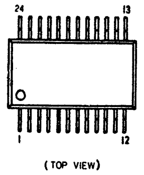
CF77309FR


33
23
34
22
44
12
1
11

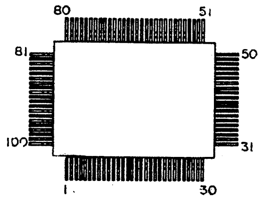
CXA1047M


30
16
1
15
(Top-view)

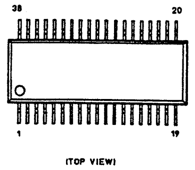
CXA1109M
TA8607F


24
13
1
12
(TOP VIEW)

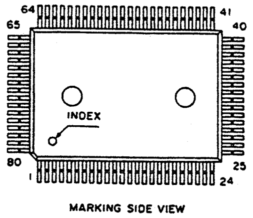
CXD1208AQ


80
51
81
50
100
31
1
30

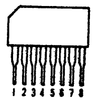
CXK1206M


38
20
1
19
(TOP VIEW)

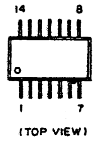
CXP80116-855Q


64
41
65
40
INDEX
80
25
1
24
MARKING SIDE VIEW

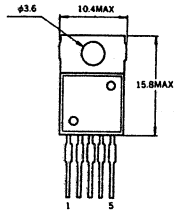
CX20061



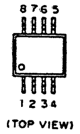
MC14069UBF
RC3403AM


14
8
1
7
(TOP VIEW)

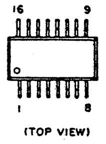
MC14538BF


φ3.6
10.4MAX
15.8MAX
1
5

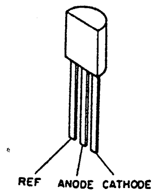
NJM2234M
NJM2238M
NJM2246M
RC3414M


8 7 6 5
1 2 3 4
(TOP VIEW)

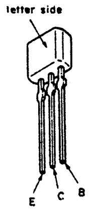
TA7745F


16
9
1
8
(TOP VIEW)

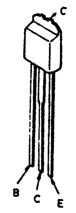
TL431CLP


REF
ANODE
CATHODE

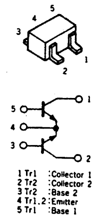
2SA1175-HFE


letter side
E
C
B

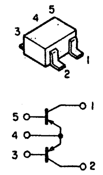
2SA1385-ZL
2SC3518



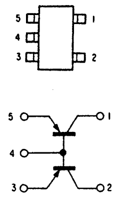
FMG2
FMW1


5
4
3
2
1
1 Tr1 :Collector 1
2 Tr2 :Collector 2
3 Tr2 :Base 2
4 Tr1, 2 :Emitter
5 Tr1 :Base 1

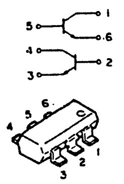
FMS1



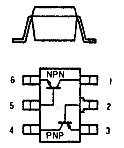
FMS2



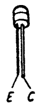
IMX1



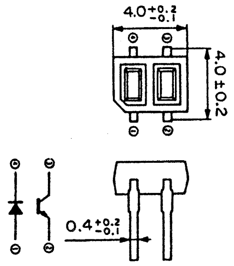
IMZ1


6
5
4
1
2
3
NPN
PNP

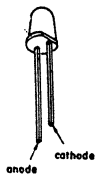
NJL7141E



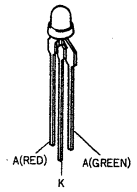
GP2S09-B


4.0+0.2 -0.1
4.0±0.2
0.4+0.2 -0.1

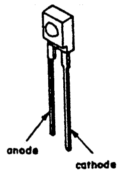
AA3422S


anode
cathode

GL3ED8


A(RED)
A(GREEN)
K

GL-450S


anode
cathode

SLP281C-50
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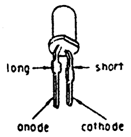
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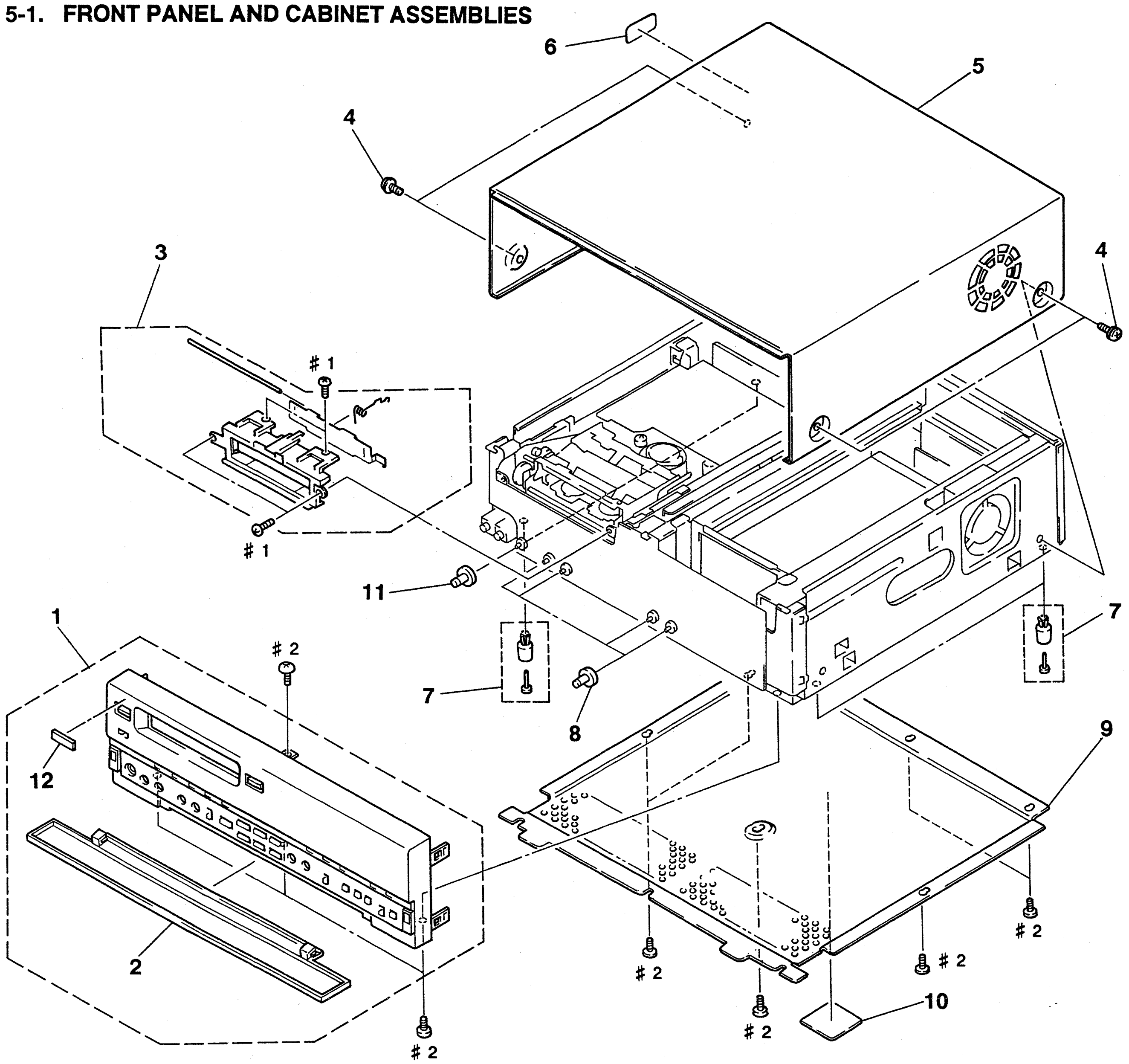
SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

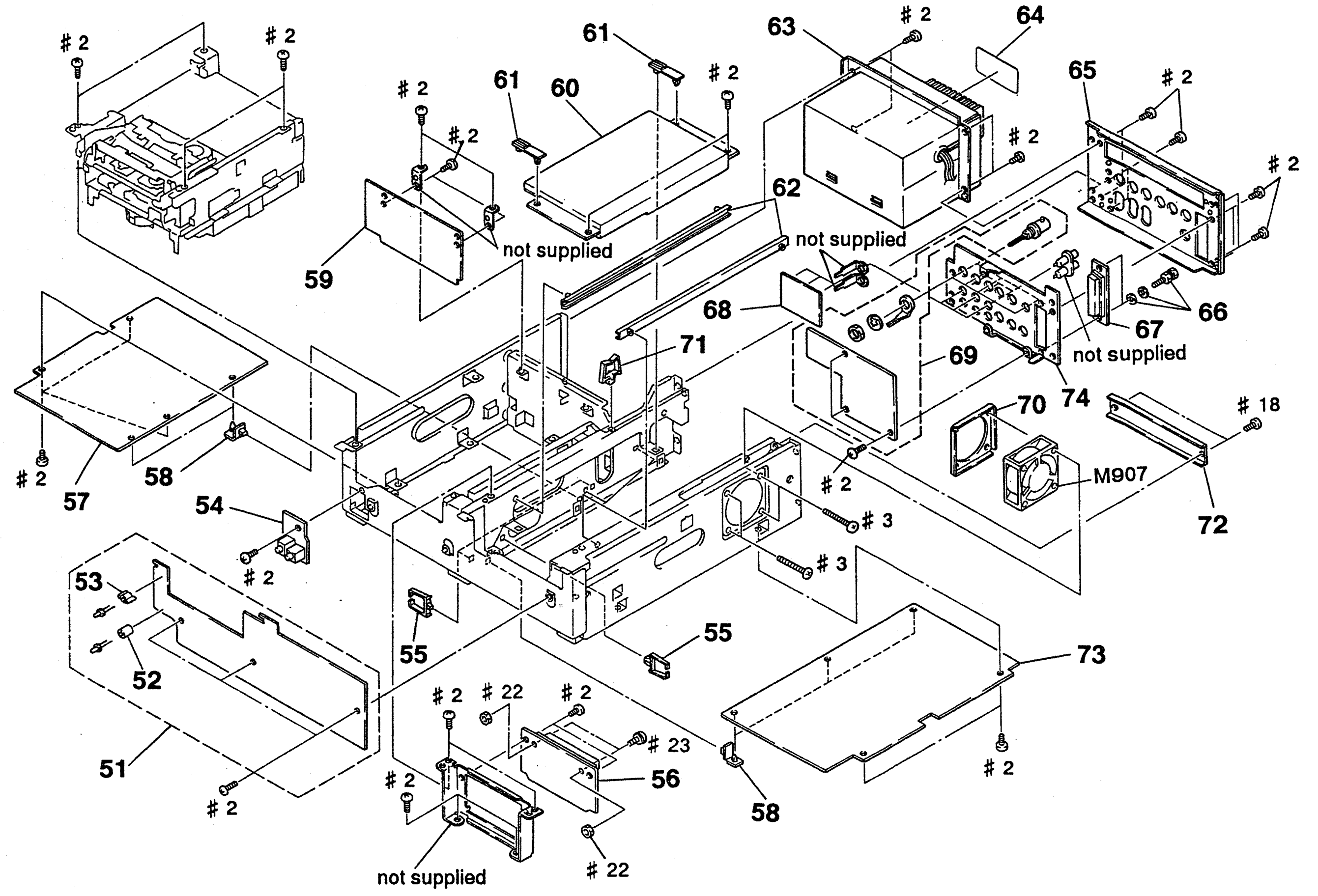
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. FRONT PANEL AND CABINET ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	X-3941-968-1	PANEL ASSY, FRONT	
2	X-3941-418-1	DOOR ASSY	
3	X-3941-415-1	WINDOW ASSY	
4	4-886-821-11	SCREW, M3 CASE	
* 5	3-724-167-11	CASE, UPPER	
6	3-703-043-51	LABEL, CAUTION, MAIN	
7	3-694-479-01	FOOT	
8	3-724-113-01	KNOB, ADJUST	
* 9	3-724-168-01	PLATE, BOTTOM	
10	3-703-082-21	LABEL, CAUTION	
11	3-724-113-11	KNOB, ADJUST	
* 12	3-712-039-21	EMBLEM, SONY	

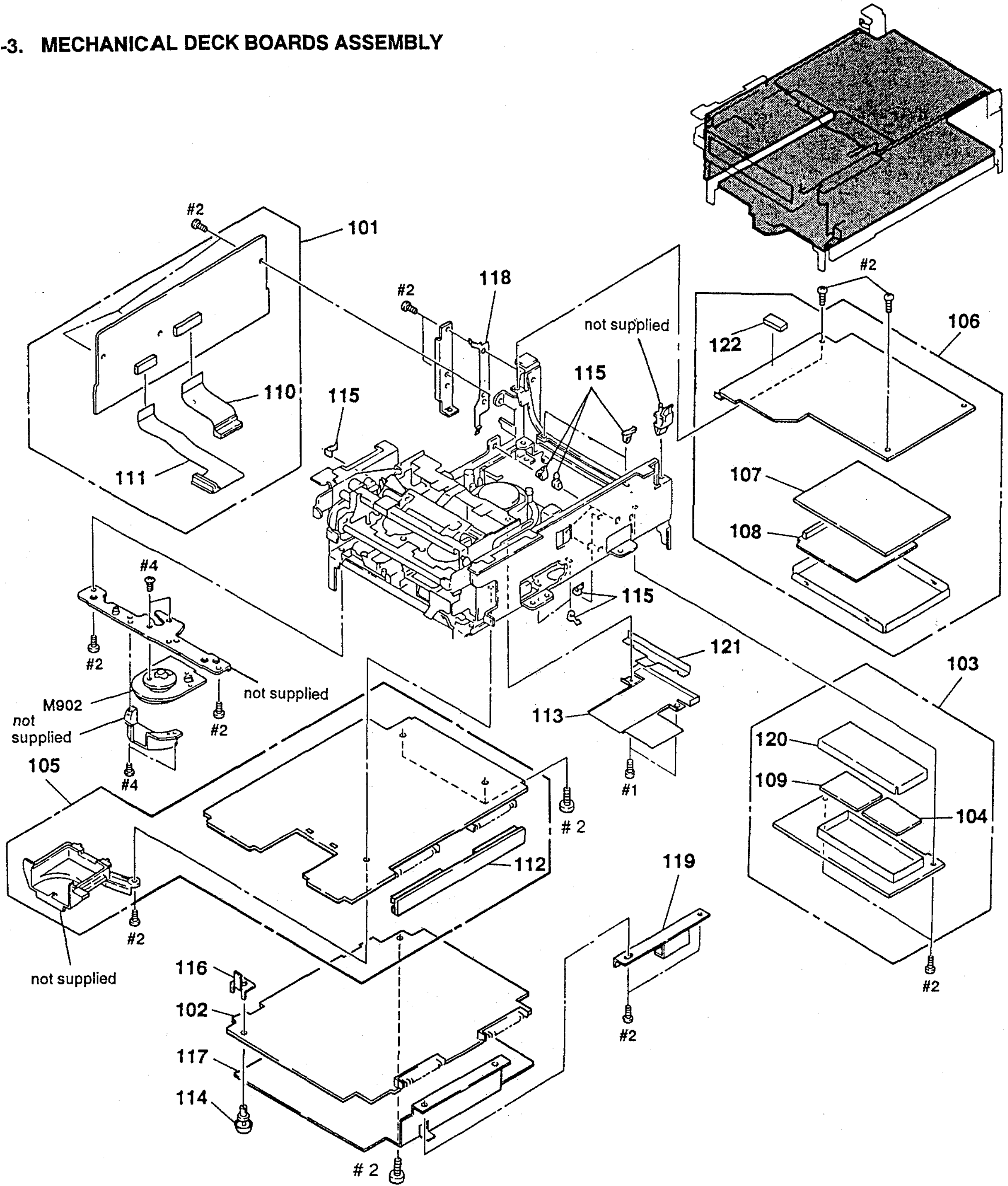
5-2. PC BOARDS AND POWER SUPPLY ASSEMBLIES



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 51	A-7063-312-A	FB-201 (P) BOARD, COMPLETE	
* 52	3-689-521-01	HOLDER, LED, ROUND	
* 53	3-945-213-01	HOLDER, LED, TWO COLOR	
* 54	A-7071-693-A	MJ-42 (P) BOARD, COMPLETE	
* 55	4-314-320-00	HOLDER, WIRE	
* 56	A-7063-315-A	MB-50 (P) BOARD, COMPLETE	
* 57	A-7063-303-A	MA-163 BOARD, COMPLETE	
* 58	3-696-448-01	HINGE, SS	
* 59	A-7063-313-A	VR-38 (P) BOARD, COMPLETE	
* 60	A-7063-302-A	MM-20 (P) BOARD, COMPLETE	
* 61	3-710-565-01	HINGE, PC BOARD	
* 62	3-673-676-31	RAIL, PC BOARD GUIDE	
⚠63	1-413-629-21	SWITCHING BLOCK (POWER BLOCK)	
* 64	3-949-802-01	LABEL, MODEL NUMBER	
* 65	3-944-476-01	PANEL, REAR	
66	3-946-875-01	NUT, CONNECTION CODE	
67	1-690-730-11	CORD, CONNECTION	
* 68	A-7071-692-A	JB-26 (P) BOARD, COMPLETE	
* 69	A-7071-691-A	TR-54 (P) BOARD, COMPLETE	
* 70	3-697-996-01	BRACKET, FAN	
71	3-703-150-11	STOPPER, WIRING	
* 72	3-946-891-01	PANEL, RGB BLIND	
* 73	A-7063-301-A	IF-38 (P) BOARD, COMPLETE	
74	1-537-414-11	TERMINAL BOARD	
M907	1-541-360-21	MOTOR, DC BLUSHLESS FAN	

5-3. MECHANICAL DECK BOARDS ASSEMBLY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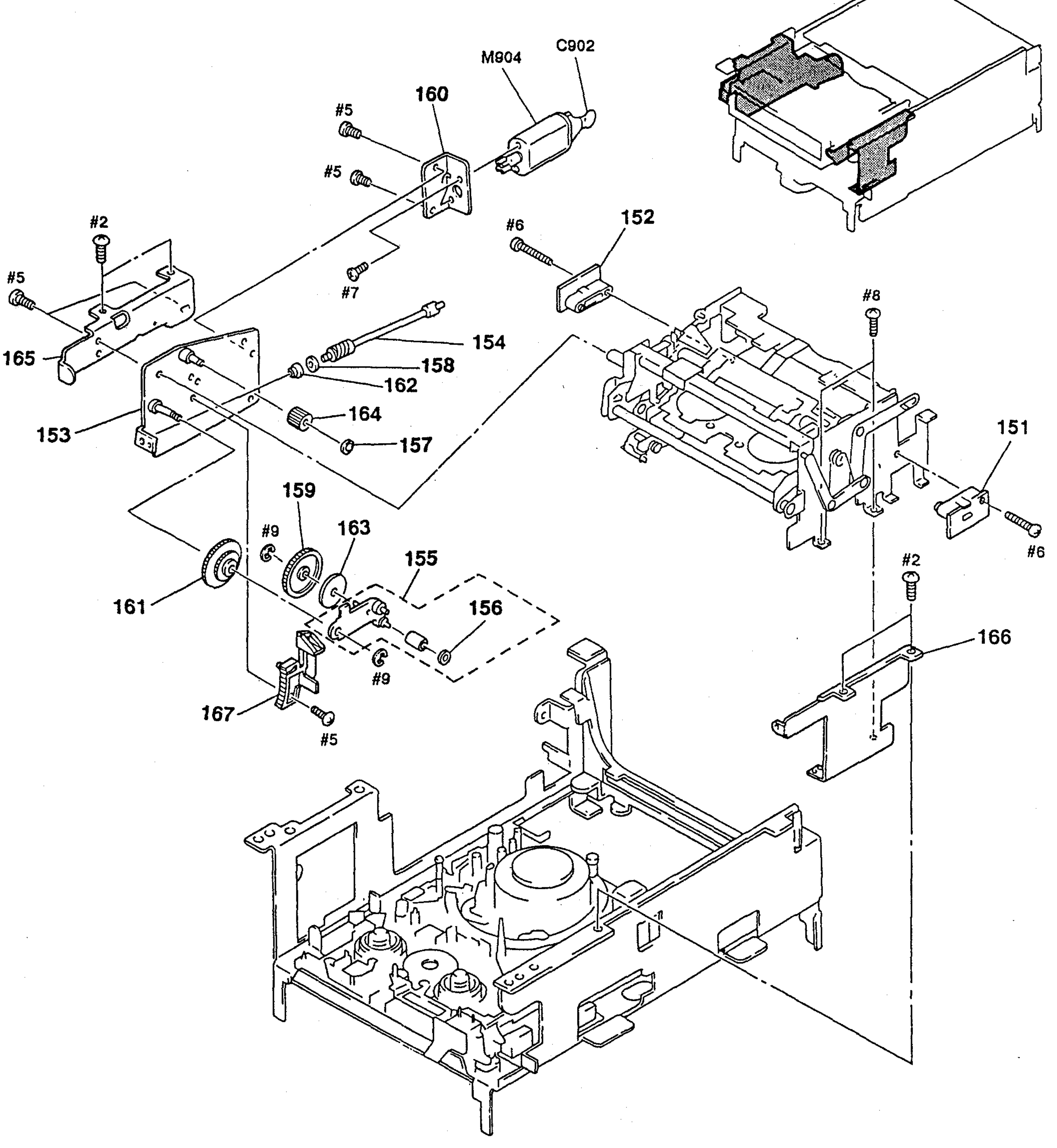
Ref. No.	Part No.	Description	Remark
* 101	A-7062-168-A	MD-23 (P) BOARD, COMPLETE	
* 102	A-7062-164-A	HK-5 BOARD, COMPLETE	
* 103	A-7062-165-A	FR-43 BOARD, COMPLETE	
* 104	A-7062-166-A	RP-103 BOARD, COMPLETE	
* 105	A-7063-300-A	SE-10 (EP) BOARD, COMPLETE	
* 106	A-7063-298-A	MB-19 (EP) BOARD, COMPLETE	
* 107	A-7063-299-A	PD-19 (EP) BOARD, COMPLETE	
* 108	A-7061-826-A	PA-27 BOARD, COMPLETE	
* 109	A-7061-827-A	RP-73 (LP) BOARD, COMPLETE	
* 110	A-7070-624-A	FP-84 BOARD, COMPLETE	
* 111	A-7070-625-A	FP-122 BOARD, COMPLETE	
* 112	A-7070-955-A	IG-4 BOARD, COMPLETE	
* 113	X-3941-898-1	COVER (B) BLOCK ASSY, FLEXIBLE	
114	3-531-576-01	RIVET	
* 115	3-671-150-11	CLAMP	
* 116	3-724-107-01	RETAINER, PC BOARD	
* 117	3-940-849-01	PLATE, SHIELD, CORE	
* 118	3-724-199-01	PLATE, SUPPORT, MB	
* 119	3-738-954-01	STOPPER, HK	
* 120	3-739-102-01	LID (H), UPPER, FR SHIELD CASE	
121	3-724-106-01	PLATE, GUARD, FLEXIBLE	
* 122	4-911-047-01	VIBRATION CONTROL (D)	
M902	8-835-304-11	MOTOR, DC U-11B (REEL)	

5-4. CASSETTE COMPARTMENT ASSEMBLY (1)



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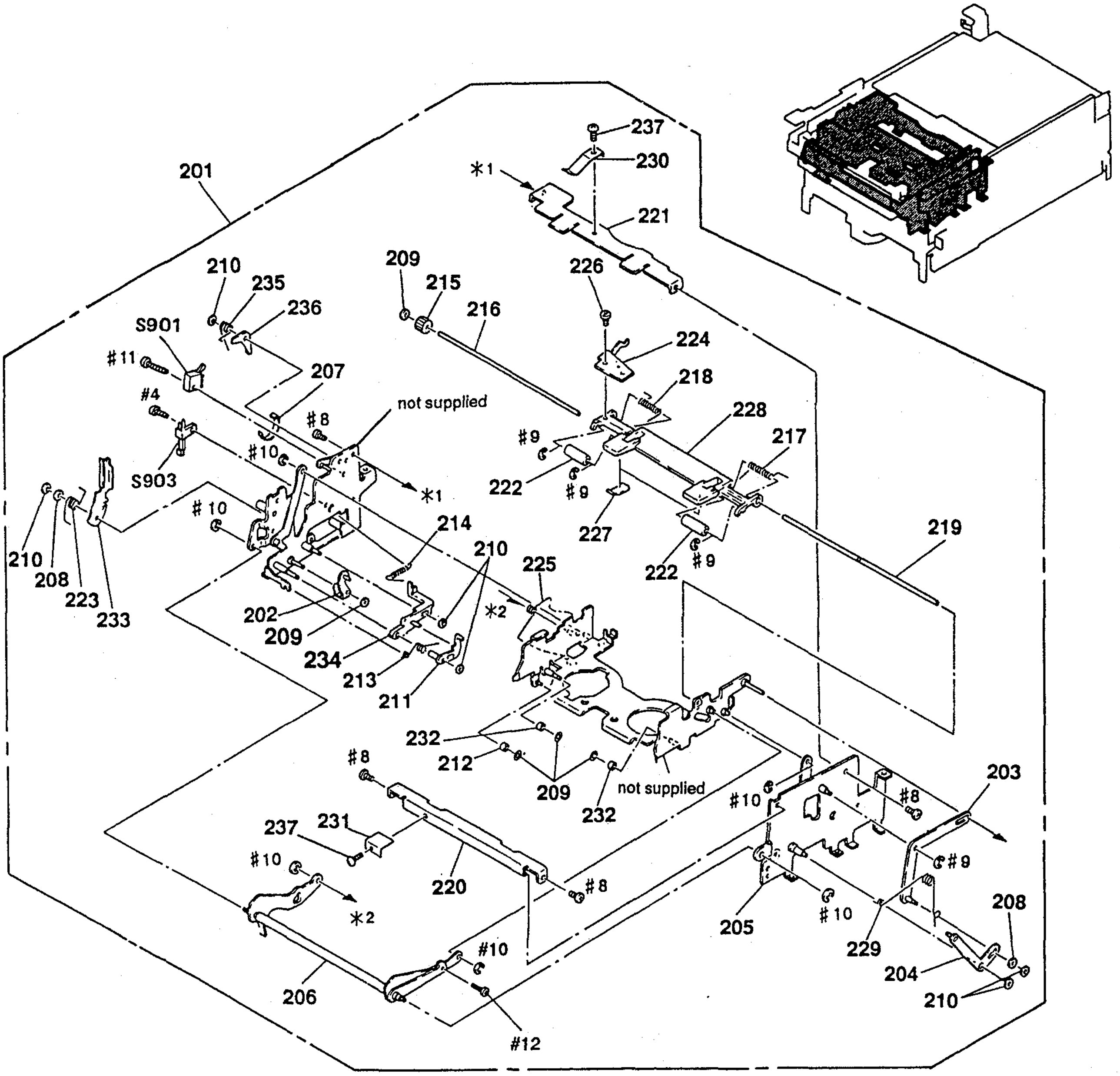
Ref. No.	Part No.	Description	Remark
* 151	A-7070-627-A	TS-74 (RIGHT) BOARD, COMPLETE	
* 152	A-7070-628-A	TS-74 (LEFT) BOARD, COMPLETE	
* 153	X-3711-934-4	PLATE SUB ASSY, BLOCK	
154	X-3711-935-3	SHAFT ASSY, WORM	
155	X-3714-193-1	LEVER ASSY (B), GEAR	
156	3-315-414-31	WASHER	
157	3-669-465-00	WASHER (1.5), STOPPER	
158	3-701-437-11	WASHER	
159	3-713-430-01	GEAR (B)	
* 160	3-713-431-01	BRACKET, MOTOR	
161	3-713-433-01	GEAR (A)	
162	3-713-439-01	BEARING	
* 163	3-713-441-01	SPRING, LEAF	
164	3-713-452-01	GEAR (C)	
* 165	3-724-140-01	BRACKET (LEFT)	
* 166	3-724-141-01	BRACKET (RIGHT)	
167	3-724-913-04	RACK	
C902	1-161-057-00	CERAMIC 0.033uF 10% 50V	
M904	X-3711-936-1	MOTOR ASSY, FL (CASSETTE COMPARTMENT)	

5-5. CASSETTE COMPARTMENT ASSEMBLY (2)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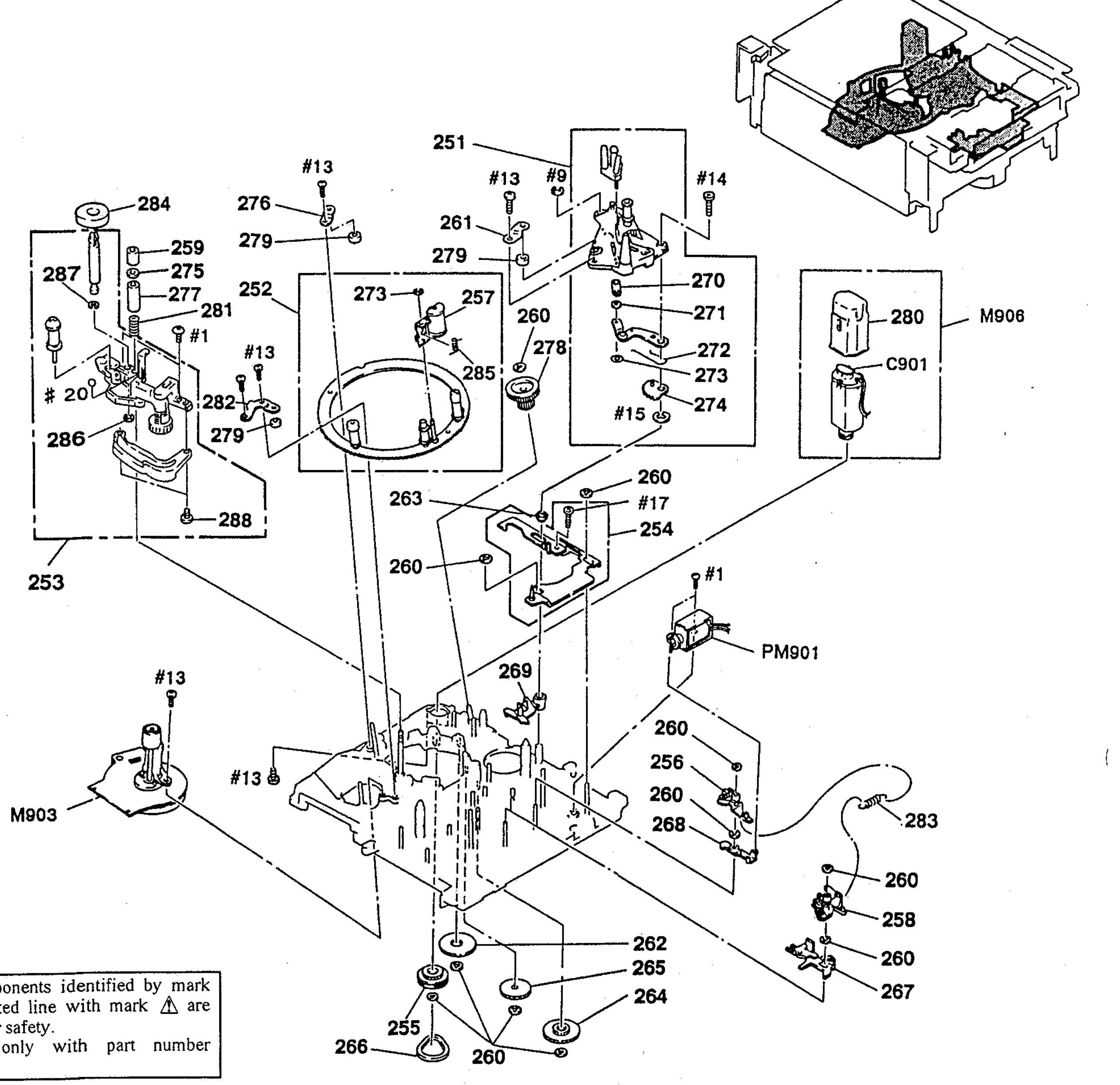
Ref. No.	Part No.	Description	Remark
201	A-7090-645-A	CASSETTE COMPARTMENT BLOCKASSY	
* 202	X-3686-541-1	CLAW ASSY, LOCK	
203	X-3711-930-1	LEVER ASSY, HOLDER	
204	X-3711-931-4	LEVER ASSY, DOOR	
* 205	X-3711-932-1	PLATE (R) ASSY, SIDE	
* 206	X-3711-937-1	JOINT ASSY	
* 207	3-337-402-01	BAND, BINDING	
208	3-533-073-01	WASHER	
209	3-578-265-11	WASHER, STOPPER	
210	3-669-465-00	WASHER (1.5), STOPPER	
211	3-686-692-01	PREVENTION, SLIDER	
* 212	3-686-693-01	ROLLER, LOCK	
213	3-686-694-01	SPRING, TORSION	
214	3-696-047-01	SPRING, TENSION	
215	3-713-429-01	GEAR (D)	
* 216	3-713-440-01	SHAFT, ROLLER	
217	3-713-442-01	SPRING (RIGHT)	
218	3-713-445-01	SPRING (LEFT)	
* 219	3-713-457-01	SHAFT, JOINT	
* 220	3-713-458-01	REINFORCEMENT	
* 221	3-713-462-03	STOPPER, HOLDER	
222	3-713-466-01	ROLLER	
223	3-713-488-01	SPRING (2), TORSION	
224	3-724-912-01	PLATE, FUNCTION, LEVER	
225	3-713-620-01	SPRING (1), TORSION	
226	3-713-622-01	SCREW (M1.3X4), TAPPING, 0	
227	3-713-625-01	SHOE, BRAKE	
228	3-713-626-01	COVER, MULTI	
229	3-713-628-01	SPRING, TORSION	
230	3-713-658-01	SPRING	
231	3-716-921-01	SPRING, LEAF	
232	3-719-590-01	ROLLER, ASSIST	
233	3-721-125-01	LEVER, LOCK	
234	3-721-136-01	SLIDER, LOCK	
235	3-721-163-01	SPRING	
236	3-721-166-01	LEVER, SWITCH	
237	3-739-116-01	SCREW (2X3), +PS	
S901	1-570-407-11	SWITCH, SLIDE (CASSETTE LOADING)	
S903	1-553-226-00	SWITCH, LEAF (CASSETTE LOCK)	

5-6. THREADING RING AND TAPE PATH ASSEMBLIES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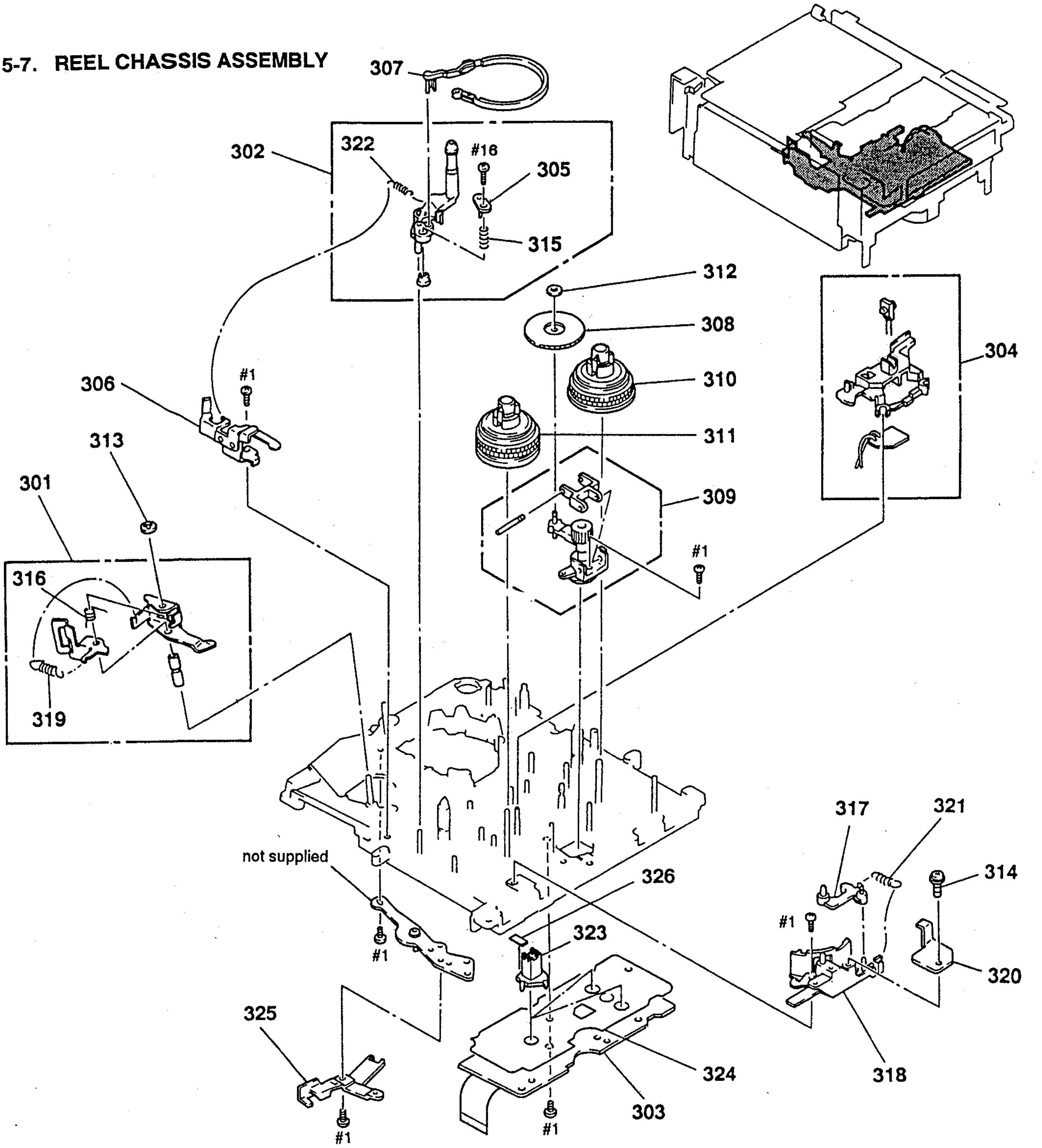
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
251	A-7040-001-A	GUIDE BLOCK ASSY, SLANT	
252	A-7040-123-A	RING ASSY, THREADING	
253	A-7040-169-D	GUIDE (P) ASSY, ENTRANCE	
254	A-7040-199-A	SLIDER (M) BLOCK ASSY, LOCK	
255	X-3686-514-1	GEAR ASSY, NO. 1	
256	X-3686-574-1	BRAKE ASSY, MAIN, TAKE-UP	
257	X-3686-576-1	ARM ASSY, PINCH ROLLER	
258	X-3713-429-1	BRAKE ASSY, MAIN, S	
259	3-686-724-01	NUT, GUIDE	
260	3-669-465-00	WASHER (1.5), STOPPER	
* 261	3-686-503-01	RETAINER, ROLLER	
262	3-686-508-01	GEAR, NO. 2	
263	3-686-537-01	RETAINER, LOCK SLODER	
264	3-686-544-01	GEAR, NO. 4	
265	3-686-545-01	GEAR, NO. 3	
266	3-686-546-01	BELT, L- MOTOR	
* 267	3-686-629-01	SLIDER, SELECTION, UPPER & LOWER	
* 268	3-686-635-01	ARM, P	
* 269	3-686-636-04	ARM, T. S RELEASE	
270	3-686-663-01	WASHER, STOPPER, 2 GANG	
271	3-701-436-21	WASHER, POLYEHTHYLENE	

Ref. No.	Part No.	Description	Remark
272	3-686-701-01	SPRING	
273	3-315-384-31	WASHER, STOPPER	
274	3-699-509-01	GEAR, SECTOR	
* 275	3-686-894-01	FLANGE, #3 #4 GUIDE	
* 276	3-686-911-01	PLATE, TOP, ROLLER	
277	3-686-912-01	GUIDE, #3 #4	
278	3-697-518-01	GEAR, NO. 10	
279	3-697-538-01	ROLLER, RING	
* 280	3-686-757-01	CAP, SHIELD, L MOTOR	
281	3-699-609-01	SPRING, COMPRESSION	
* 282	3-686-675-01	STOPPER, RING	
283	3-713-560-01	SPRING, TENSION	
284	3-722-153-01	FLYWHEEL	
* 285	3-726-704-01	SPRING, TORSION	
286	3-315-414-00	WASHER	
287	3-578-254-00	RING, RETAINING, E1.2	
288	3-316-938-31	SCREW (B1.4X4), TAPPING	
C901	1-161-057-00	CERAMIC 0.033uF 10% 50V	
M903	8-835-364-01	MOTOR, DC BHF-2802B (CAPSTAN)	
M906	A-7040-065-A	MOTOR ASSY, L (LOADING)	
⚠PM901	1-454-377-21	SOLENOID, PLUNGER (BRAKE)	

5-7. REEL CHASSIS ASSEMBLY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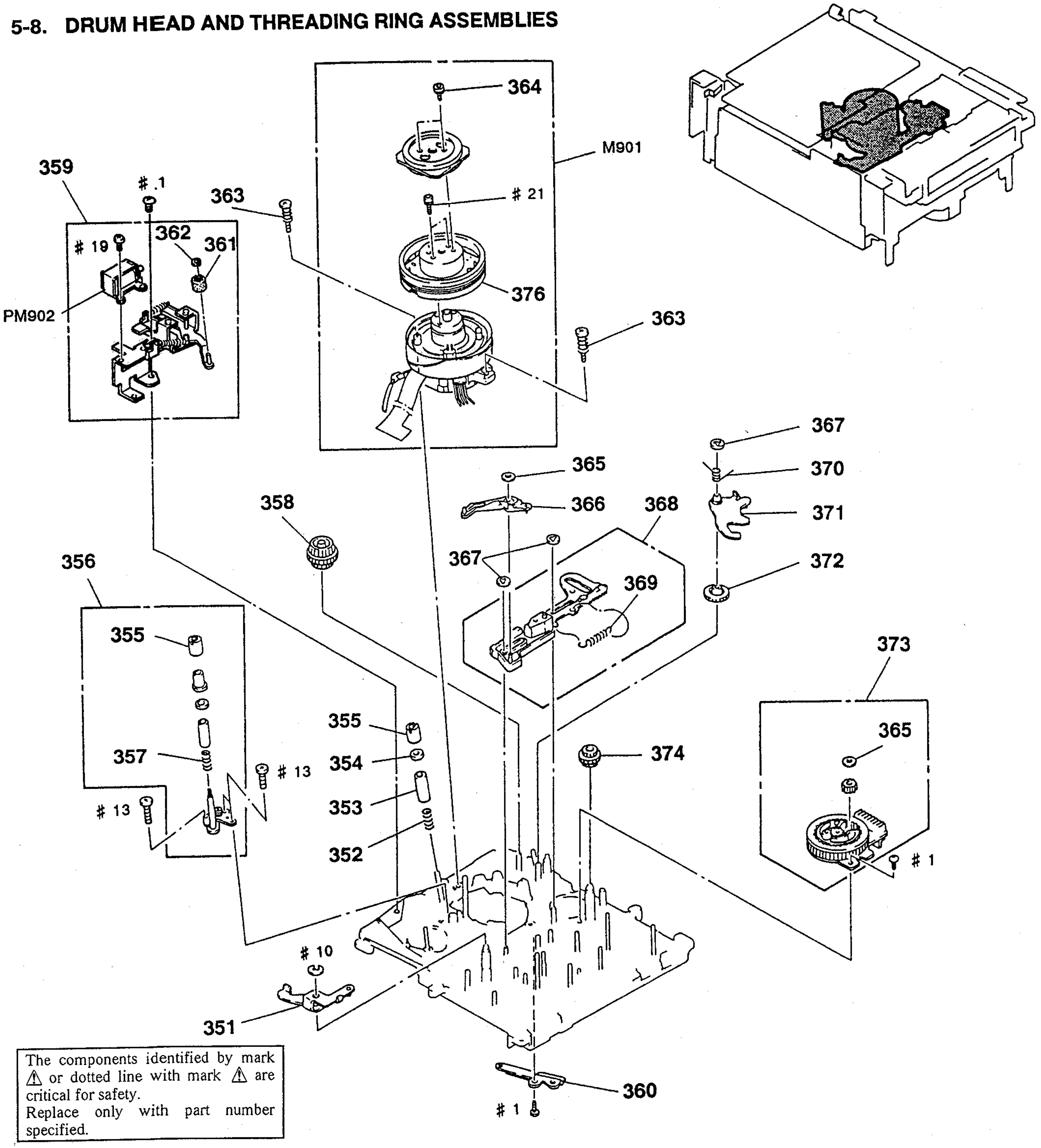
Ref. No.	Part No.	Description	Remark
301	A-7040-008-A	ARM ASSY, PINCH PRESS	
302	A-7040-071-A	ARM ASSY, TENSION REGULATOR	
* 303	A-7061-818-A	RS-31 BOARD, COMPLETE	
* 304	A-7070-024-A	LD-1 BOARD, COMPLETE	
* 305	X-3686-523-1	PLATE ASSY, TENSION REGULATOR	
* 306	X-3686-525-1	HOOK ASSY, SPRING	
307	X-3686-531-1	BAND ASSY, TENSION REGULATOR	
308	X-3686-763-1	GEAR (B) ASSY, DRIVING	
309	X-3711-963-1	DRIVING COMPLETE ASSY	
310	X-3711-998-1	TABLE ASSY, REEL, TAKE-UP	
311	X-3713-427-1	TABLE ASSY, REEL, S	
312	3-315-384-31	WASHER, STOPPER	
313	3-669-465-00	WASHER (1.5), STOPPER	
314	3-669-480-11	+ PTPWH 2	
315	3-669-666-00	SPRING, COMPRESSION	
316	3-686-568-01	SPRING, TORSION	
* 317	3-686-637-01	BRAKE (S), SOFT	
* 318	3-686-760-01	GUIDE, BAND	
319	3-686-885-01	SPRING, TENSION	
* 320	3-686-991-01	STOPPER, REEL TABLE	
321	3-714-014-01	SPRING, TENSION	
322	3-699-519-01	SPRING, TENSION	
323	3-712-410-01	HOLDER, RS	
324	3-712-411-01	INSULATOR, RS	
325	3-712-406-01	CLAMP, WIRE	
326	3-722-175-01	SPACER, MD	

5-8. DRUM HEAD AND THREADING RING ASSEMBLIES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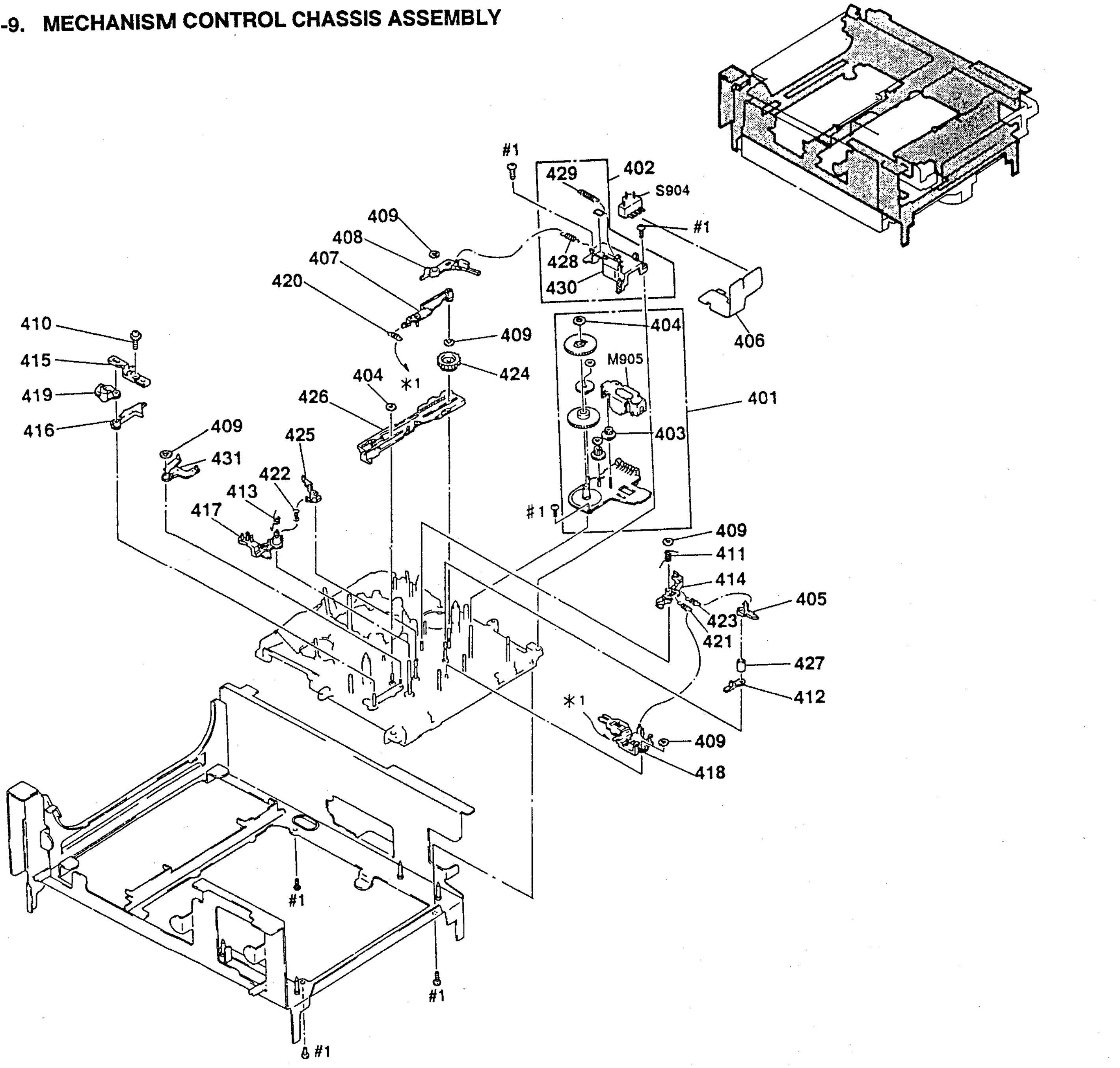
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 351	X-3686-509-1	LEVER ASSY, PINCH PRESS	
352	3-699-609-01	SPRING, COMPRESSION	
353	3-686-912-01	GUIDE, #3 #4	
* 354	3-686-894-01	FLANGE, #3 #4 GUIDE	
355	3-686-724-01	NUT, GUIDE	
356	A-7040-058-A	GUIDE BLOCK COMPLETE ASSY, #5	
357	3-699-514-01	SPRING, COMPRESSION	
358	3-686-539-01	GEAR, NO. 9	
359	A-7091-748-A	ROLLER ASSY, CLEANING	
360	1-535-535-11	TERMINAL, SHAFT GROUND	
361	X-3728-861-1	ROLLER ASSY, HC	
362	3-321-393-11	WASHER, STOPPER	
363	X-3686-569-1	SCREW ASSY, FITTING	
364	3-686-423-02	SCREW, FITTING, STATOR	
365	3-315-384-31	WASHER, STOPPER	
* 366	X-3686-518-3	ARM ASSY	
367	3-669-465-00	WASHER (1.5), STOPPER	
* 368	A-7040-010-A	SLIDER ASSY, L	
369	3-686-886-01	SPRING, TENSION	
370	3-686-540-01	SPRING, TORSION	
371	X-3686-579-1	CHANGE ASSY, DRIVE	
372	3-686-535-01	GEAR, NO. 8	
373	X-3712-403-1	L-SW ASSY (LS-9 BOARD)	
374	3-686-702-01	GEAR, DRIVING, GUIDE, SLANT	
376	A-7049-588-A	DRUM ASSY, ROTARY UPPER (DGR-0A0-R)	
M901	A-7048-650-A	DRUM ASSY (DGH-0A0A-R)	
⚠PM902	1-454-377-31	SOLENOID, PLUNGER (CLEANING ROLLER)	

5-9. MECHANISM CONTROL CHASSIS ASSEMBLY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Ref. No.	Part No.	Description	Remark
401	A-7040-159-A	M-SW ASSY	
402	A-7040-198-A	COVER (M) ASSY, C MOTOR	
403	3-308-502-00	WHEEL, WORM	
404	3-315-384-31	WASHER, STOPPER	
405	X-3711-993-1	BRAKE ASSY, REW	
* 406	1-630-923-11	FP-206 FLEXIBLE BOARD	
* 407	X-3686-528-4	ARM ASSY, B RELEASE	
408	X-3711-987-2	BRAKE ASSY, T.S	
409	3-669-465-00	WASHER (1.5), STOPPER	
410	3-686-528-01	SCREW (2X6), +	
411	3-686-579-01	SPRING	
* 412	3-686-580-01	ARM, SET UP	
413	3-686-603-04	SPRING	
* 414	3-686-634-01	ARM, RL	
* 415	3-686-642-01	PLATE, ADJUSTMENT, BAND	
* 416	3-686-643-01	ARM, MODE	
* 417	3-686-644-01	ARM, BAND	
* 418	3-686-656-01	SLIDER, B RELEASE	
* 419	3-686-755-01	DISK, EJECT	
420	3-686-903-01	SPRING, TENSION	
421	3-686-904-01	SPRING, TENSION	
422	3-686-905-02	SPRING, TENSION	
423	3-686-906-01	SPRING, TENSION	
424	3-686-909-01	GEAR, MODE OUTPUT	
425	3-686-996-01	BRAKE (S), HARD	
426	3-716-935-01	SLIDER, M	
427	3-716-933-01	SPACER, REW BRAKE	
428	3-714-035-01	SPRING, TENSION	
429	3-722-110-01	SPRING, TENSION	
430	3-739-107-01	COVER (M), C MOTOR	
* 431	X-3686-530-1	ARM (A) ASSY, SELECTION	
M905	8-835-138-01	MOTOR, DC (DNR-5301B) (CONTROL)	
S904	1-572-298-21	SWITCH, PUSH (REC PROOF, MPHG, ME/MP)	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Hardware (# mark) list is given in the last of this parts list.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description	Remark
*	A-7063-312-A	FB-201 (P) BOARD, COMPLETE ************************** (Ref. No 11000 Series)	
*	3-689-521-01	HOLDER, LED, ROUND	
	3-945-213-01	HOLDER, LED, TWO COLOR	
		< CAPACITOR >	
C005	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C201	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C202	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C203	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C204	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C205	1-135-168-21	TANTAL. CHIP 100uF 20% 4V	
C206	1-135-161-21	TANTALUM CHIP 22uF 10% 10V	
C207	1-135-161-21	TANTALUM CHIP 22uF 10% 10V	
C208	1-135-168-21	TANTAL. CHIP 100uF 20% 4V	
C210	1-163-014-00	CERAMIC CHIP 0.0027uF 5% 50V	
C212	1-163-014-00	CERAMIC CHIP 0.0027uF 5% 50V	
C213	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C214	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C221	1-124-257-00	ELECT 2.2uF 20% 50V	
C222	1-124-257-00	ELECT 2.2uF 20% 50V	
C223	1-126-157-11	ELECT 10uF 20% 16V	
C224	1-126-157-11	ELECT 10uF 20% 16V	
C225	1-126-157-11	ELECT 10uF 20% 16V	
C226	1-126-157-11	ELECT 10uF 20% 16V	
C227	1-126-160-11	ELECT 1uF 20% 50V	
C230	1-126-157-11	ELECT 10uF 20% 16V	
C231	1-126-157-11	ELECT 10uF 20% 16V	
C232	1-124-234-00	ELECT 22uF 20% 16V	
C233	1-124-234-00	ELECT 22uF 20% 16V	
C234	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C235	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C236	1-124-234-00	ELECT 22uF 20% 16V	
C237	1-124-234-00	ELECT 22uF 20% 16V	
C238	1-124-234-00	ELECT 22uF 20% 16V	
C301	1-126-157-11	ELECT 10uF 20% 16V	
C302	1-126-157-11	ELECT 10uF 20% 16V	
C801	1-126-157-11	ELECT 10uF 20% 16V	
C802	1-126-157-11	ELECT 10uF 20% 16V	
C803	1-163-035-00	CERAMIC CHIP 0.047uF 50V	

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN102	1-506-486-11	PIN, CONNECTOR 7P	
CN104	1-506-483-21	PIN, CONNECTOR 4P	
CN105	1-506-492-11	PIN, CONNECTOR 13P	
CN801	1-506-492-11	PIN, CONNECTOR 13P	
CN802	1-506-491-11	PIN, CONNECTOR 12P	
		< DIODE >	
D016	8-719-812-31	LED TLR123 (OVER)	
D017	8-719-920-05	LED SLP281C-50 (0dB)	
D018	8-719-920-05	LED SLP281C-50 (UNDER)	
D019	8-719-812-31	LED TLR123 (OVER)	
D020	8-719-920-05	LED SLP281C-50 (0dB)	
D021	8-719-920-05	LED SLP281C-50 (UNDER)	
D201	8-719-104-34	DIODE 1S2836	
D202	8-719-104-34	DIODE 1S2836	
D204	8-719-104-34	DIODE 1S2836	
D205	8-719-400-18	DIODE MA152WK	
D206	8-719-104-34	DIODE 1S2836	
D207	8-719-104-34	DIODE 1S2836	
D801	8-719-106-44	DIODE RD9.1M-B2	
D802	8-719-106-44	DIODE RD9.1M-B2	
D803	8-719-106-44	DIODE RD9.1M-B2	
D804	8-719-106-44	DIODE RD9.1M-B2	
D805	8-719-106-44	DIODE RD9.1M-B2	
D806	8-719-106-44	DIODE RD9.1M-B2	
D807	8-719-106-44	DIODE RD9.1M-B2	
D808	8-719-106-44	DIODE RD9.1M-B2	
D809	8-719-106-44	DIODE RD9.1M-B2	
D810	8-719-106-44	DIODE RD9.1M-B2	
D811	8-719-918-96	LED AA3422S (EXT. CPU)	
D812	8-719-981-49	DIODE GL3ED8 (TAPE RUN/PAUSE)	
D814	8-719-918-96	LED AA3422S (BUFFER)	
D815	8-719-918-96	LED AA3422S (DNR)	
D816	8-719-920-05	LED SLP281C-50 (TC)	
D817	8-719-920-05	LED SLP281C-50 (EJECT)	
D818	8-719-812-31	LED TLR123 (AUDIO DUB)	
D819	8-719-920-05	LED SLP281C-50 (Hi8)	
D820	8-719-812-32	LED TLY123 (📼)	
D821	8-719-920-05	LED SLP281C-50 (PCM)	
D822	8-719-812-32	LED TLY123 (SP)	
D823	8-719-812-31	LED TLR123 (REC)	
D824	8-719-981-49	DIODE GL3ED8 (POWER ON/STANDBY)	

Ref. No.	Part No.	Description	Remark
		(IC)	
IC003	8-759-981-92	IC RC4558M	
IC201	8-759-924-46	IC BA4560F	
IC202	8-759-300-71	IC HD14053BFP	
IC203	8-759-981-92	IC RC4558M	
IC204	8-759-981-92	IC RC4558M	
IC205	8-759-700-62	IC NJM4562D	
IC301	8-759-057-46	IC BA6124F	
IC302	8-759-057-46	IC BA6124F	
IC801	8-759-937-21	IC CXD1078M	
		(COIL)	
L801	1-407-169-XX	INDUCTOR 100uH	
		(TRANSISTOR)	
Q201	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q202	8-729-216-22	TRANSISTOR 2SA1162-G	
Q203	8-729-901-01	TRANSISTOR DTC144EK	
Q204	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q205	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q206	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q207	8-729-101-07	TRANSISTOR 2SB798-DL	
Q210	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q211	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q212	8-729-901-06	TRANSISTOR DTA144EK	
Q213	8-729-901-01	TRANSISTOR DTC144EK	
Q214	8-729-901-06	TRANSISTOR DTA144EK	
Q215	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q216	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q217	8-729-901-01	TRANSISTOR DTC144EK	
Q218	8-729-901-01	TRANSISTOR DTC144EK	
Q219	8-729-901-01	TRANSISTOR DTC144EK	
Q801	8-729-901-04	TRANSISTOR DTA114EK	
Q802	8-729-901-04	TRANSISTOR DTA114EK	
Q803	8-729-901-04	TRANSISTOR DTA114EK	
Q804	8-729-901-04	TRANSISTOR DTA114EK	
		(RESISTOR)	
R075	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R076	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R101	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R131	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R201	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R202	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R203	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R204	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R205	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R206	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R207	1-216-105-00	METAL CHIP 220K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R208	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R209	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R210	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R212	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R213	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R214	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R215	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R216	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R217	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R218	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R219	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R228	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R229	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R230	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R231	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R232	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R233	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R234	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R235	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R236	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R237	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R238	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R239	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R241	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R243	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R244	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R245	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R246	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R247	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R249	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R250	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R251	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R252	1-216-037-00	METAL CHIP 330 5% 1/10W	
R253	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R254	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R255	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R256	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R257	1-216-037-00	METAL CHIP 330 5% 1/10W	
R258	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R259	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R260	1-216-295-00	METAL CHIP 0 5% 1/10W	
R263	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R264	1-216-295-00	METAL CHIP 0 5% 1/10W	
R266	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R267	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R268	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R269	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R270	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R271	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R273	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	

Ref. No.	Part No.	Description	Remark
R045	1-216-021-00	METAL CHIP 68 5% 1/10W	
R046	1-216-013-00	METAL CHIP 33 5% 1/10W	
R047	1-216-043-00	METAL CHIP 560 5% 1/10W	
R048	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R049	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R051	1-216-035-00	METAL CHIP 270 5% 1/10W	
R052	1-216-025-00	METAL CHIP 100 5% 1/10W	

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description	Remark
RV001	1-230-871-11	RES, ADJ, METAL 22K	
RV002	1-230-871-11	RES, ADJ, METAL 22K	

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* A-7062-164-A HK-5 BOARD, COMPLETE
****
(Ref. No 4000 Series)

3-531-576-01 RIVET
* 3-724-107-01 RETAINER, PC BOARD
3-831-441-XX CUSHION (5)

(CAPACITOR)

Ref. No.	Part No.	Description	Remark
C101	1-135-166-21	TANTALUM CHIP 47uF 10% 10V	
C102	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C103	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C104	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	
C105	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C106	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C108	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C109	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C110	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C111	1-163-114-00	CERAMIC CHIP 75PF 5% 50V	
C112	1-163-245-11	CERAMIC CHIP 56PF 5% 50V	
C113	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C114	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C115	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C116	1-135-070-00	TANTALUM CHIP 0.1uF 10% 35V	
C117	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C118	1-163-224-11	CERAMIC CHIP 7PF 0.25PF 50V	
C119	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
C120	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C122	1-163-085-00	CERAMIC CHIP 2PF 50V	
C123	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C124	1-163-237-11	CERAMIC CHIP 27PF 5% 50V	
C126	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C127	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C128	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C129	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
C130	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C131	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C132	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C133	1-163-089-00	CERAMIC CHIP 6PF 50V	
C134	1-163-235-11	CERAMIC CHIP 22PF 5% 50V	
C135	1-163-224-11	CERAMIC CHIP 7PF 0.25PF 50V	
C136	1-163-099-00	CERAMIC CHIP 18PF 5% 50V	
C137	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C138	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C139	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C140	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C141	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C142	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C143	1-135-145-11	TANTALUM CHIP 0.47uF 10% 35V	
C144	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C145	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C146	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C147	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C148	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C149	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C181	1-163-275-11	CERAMIC CHIP 0.001uF 5% 50V	
C182	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C183	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C184	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C201	1-135-166-21	TANTALUM CHIP 47uF 10% 10V	
C202	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C203	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C204	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C206	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C207	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C208	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C209	1-163-235-11	CERAMIC CHIP 22PF 5% 50V	
C210	1-163-106-00	CERAMIC CHIP 36PF 5% 50V	
C211	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C212	1-135-211-11	TANTAL. CHIP 6.8uF 20% 6.3V	
C213	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C214	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C215	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C216	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C217	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C218	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C219	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C220	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C221	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C222	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C223	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C224	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C302	1-135-166-21	TANTALUM CHIP 47uF 10% 10V	
C303	1-163-229-11	CERAMIC CHIP 12PF 5% 50V	
C304	1-163-099-00	CERAMIC CHIP 18PF 5% 50V	
C305	1-163-137-00	CERAMIC CHIP 680PF 5% 50V	
C307	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C308	1-135-166-21	TANTALUM CHIP 47uF 10% 10V	

Ref. No.	Part No.	Description				Remark
C309	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C311	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C313	1-135-166-21	TANTALUM CHIP	47uF	10%	10V	
C314	1-163-241-11	CERAMIC CHIP	39PF	5%	50V	
C316	1-163-241-11	CERAMIC CHIP	39PF	5%	50V	
C317	1-163-245-11	CERAMIC CHIP	56PF	5%	50V	
C318	1-164-491-11	CERAMIC CHIP	300PF	1%	50V	
C319	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C320	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C321	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C322	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C323	1-163-012-00	CERAMIC CHIP	0.0018uF	10%	50V	
C324	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C325	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V	
C326	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C327	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V	
C328	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C329	1-135-166-21	TANTALUM CHIP	47uF	10%	10V	
C330	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C331	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V	
C332	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V	
C334	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V	
C335	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C337	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	
C338	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C339	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C340	1-135-072-21	TANTALUM CHIP	0.22uF	10%	35V	
C341	1-135-161-21	TANTALUM CHIP	22uF	10%	10V	
C342	1-135-166-21	TANTALUM CHIP	47uF	10%	10V	
C343	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C344	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C345	1-163-134-00	CERAMIC CHIP	510PF	5%	50V	
C347	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C348	1-135-166-21	TANTALUM CHIP	47uF	10%	10V	
C349	1-135-177-21	TANTALUM CHIP	1uF	20%	20V	
C350	1-135-161-21	TANTALUM CHIP	22uF	10%	10V	
C402	1-124-968-11	ELECT	22uF	20%	6.3V	
C403	1-163-106-00	CERAMIC CHIP	36PF	5%	50V	
C404	1-163-245-11	CERAMIC CHIP	56PF	5%	50V	
C405	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C406	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C407	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C408	1-163-227-11	CERAMIC CHIP	10PF	5%	50V	
C409	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C410	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C411	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V	
C412	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V	
C413	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C414	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C415	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	

Ref. No.	Part No.	Description				Remark
C416	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C417	1-162-722-11	CERAMIC	330PF	1%	50V	
C418	1-162-724-11	CERAMIC	390PF	1%	50V	
C419	1-164-491-11	CERAMIC CHIP	300PF	1%	50V	
C420	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V	
C421	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C422	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C423	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C424	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V	
C427	1-135-161-21	TANTALUM CHIP	22uF	10%	10V	
C428	1-135-161-21	TANTALUM CHIP	22uF	10%	10V	
C429	1-135-161-21	TANTALUM CHIP	22uF	10%	10V	
C430	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	
C501	1-135-166-21	TANTALUM CHIP	47uF	10%	10V	
C502	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C503	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C504	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C505	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C506	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C507	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C508	1-163-245-11	CERAMIC CHIP	56PF	5%	50V	
C509	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V	
C510	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V	
C511	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C512	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C513	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C514	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C515	1-163-239-11	CERAMIC CHIP	33PF	5%	50V	
C516	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V	
C517	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C519	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C520	1-163-245-11	CERAMIC CHIP	56PF	5%	50V	
C521	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	
C522	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C523	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C524	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C525	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C526	1-135-161-21	TANTALUM CHIP	22uF	10%	10V	
C527	1-135-161-21	TANTALUM CHIP	22uF	10%	10V	
C528	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C529	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C531	1-135-161-21	TANTALUM CHIP	22uF	10%	10V	
C532	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C601	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V	
C602	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C603	1-163-263-11	CERAMIC CHIP	330PF	5%	50V	
C604	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C605	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C606	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C607	1-135-070-00	TANTALUM CHIP	0.1uF	10%	35V	

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Ref. No.	Part No.	Description	Remark
L307	1-408-779-31	INDUCTOR CHIP 15uH	
L308	1-408-783-00	INDUCTOR CHIP 33uH	
L309	1-408-970-21	INDUCTOR 10uH	
L310	1-408-982-11	INDUCTOR 100uH	
L312	1-408-982-11	INDUCTOR 100uH	
L401	1-408-782-11	INDUCTOR CHIP 27uH	
L402	1-408-970-21	INDUCTOR 10uH	
L501	1-408-984-21	INDUCTOR 150uH	
L502	1-408-781-00	INDUCTOR CHIP 22uH	
L503	1-408-765-21	INDUCTOR CHIP 1uH	
L504	1-408-765-21	INDUCTOR CHIP 1uH	
L505	1-408-776-00	INDUCTOR CHIP 8.2uH	
L506	1-408-982-11	INDUCTOR 100uH	
L510	1-408-777-00	INDUCTOR CHIP 10uH	
L601	1-408-982-11	INDUCTOR 100uH	
L602	1-408-792-00	INDUCTOR CHIP 180uH	
L603	1-408-781-00	INDUCTOR CHIP 22uH	
L604	1-408-789-21	INDUCTOR CHIP 100uH	
L605	1-408-790-00	INDUCTOR CHIP 120uH	
L606	1-408-793-21	INDUCTOR CHIP 220uH	
L701	1-408-780-21	INDUCTOR CHIP 18uH	
L702	1-408-795-21	INDUCTOR CHIP 330uH	
L705	1-408-978-21	INDUCTOR 47uH	
L710	1-410-476-11	INDUCTOR 33uH	
L801	1-408-781-00	INDUCTOR CHIP 22uH	
L802	1-408-982-11	INDUCTOR 100uH	
L803	1-408-795-21	INDUCTOR CHIP 330uH	
		< COIL, VARIABLE >	
LV501	1-404-594-11	COIL, VARIABLE	
		< TRANSISTOR >	
Q101	8-729-200-86	TRANSISTOR 2SC2714-O	
Q102	8-729-901-04	TRANSISTOR DTA114EK	
Q103	8-729-200-86	TRANSISTOR 2SC2714-O	
Q104	8-729-901-01	TRANSISTOR DTC144EK	
Q105	8-729-904-07	TRANSISTOR FMG2	
Q107	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q110	8-729-901-01	TRANSISTOR DTC144EK	
Q111	8-729-200-86	TRANSISTOR 2SC2714-O	
Q112	8-729-901-01	TRANSISTOR DTC144EK	
Q113	8-729-200-86	TRANSISTOR 2SC2714-O	
Q116	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q117	8-729-200-86	TRANSISTOR 2SC2714-O	
Q118	8-729-200-86	TRANSISTOR 2SC2714-O	
Q119	8-729-200-86	TRANSISTOR 2SC2714-O	
Q120	8-729-200-86	TRANSISTOR 2SC2714-O	
Q121	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q122	8-729-901-01	TRANSISTOR DTC144EK	
Q123	8-729-901-01	TRANSISTOR DTC144EK	
Q124	8-729-901-06	TRANSISTOR DTA144EK	
Q125	8-729-901-01	TRANSISTOR DTC144EK	
Q126	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q127	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q128	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q129	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q130	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q131	8-729-216-22	TRANSISTOR 2SA1162-G	
Q132	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q181	8-729-907-46	TRANSISTOR IMZ1	
Q182	8-729-903-10	TRANSISTOR FMW1	
Q183	8-729-200-86	TRANSISTOR 2SC2714-O	
Q184	8-729-216-22	TRANSISTOR 2SA1162-G	
Q209	8-729-200-86	TRANSISTOR 2SC2714-O	
Q210	8-729-200-86	TRANSISTOR 2SC2714-O	
Q211	8-729-200-86	TRANSISTOR 2SC2714-O	
Q212	8-729-901-01	TRANSISTOR DTC144EK	
Q213	8-729-901-06	TRANSISTOR DTA144EK	
Q214	8-729-200-86	TRANSISTOR 2SC2714-O	
Q215	8-729-902-96	TRANSISTOR FMS1	
Q217	8-729-200-86	TRANSISTOR 2SC2714-O	
Q218	8-729-200-86	TRANSISTOR 2SC2714-O	
Q301	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q302	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q305	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q306	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q307	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q309	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q310	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q311	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q312	8-729-901-06	TRANSISTOR DTA144EK	
Q313	8-729-216-22	TRANSISTOR 2SA1162-G	
Q314	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q315	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q316	8-729-901-01	TRANSISTOR DTC144EK	
Q317	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q318	8-729-901-06	TRANSISTOR DTA144EK	
Q319	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q320	8-729-901-01	TRANSISTOR DTC144EK	
Q321	8-729-901-01	TRANSISTOR DTC144EK	
Q322	8-729-216-22	TRANSISTOR 2SA1162-G	
Q323	8-729-901-01	TRANSISTOR DTC144EK	
Q324	8-729-901-01	TRANSISTOR DTC144EK	
Q325	8-729-901-06	TRANSISTOR DTA144EK	
Q326	8-729-901-06	TRANSISTOR DTA144EK	
Q327	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q328	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q330	8-729-901-06	TRANSISTOR DTA144EK	
Q389	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q401	8-729-201-27	TRANSISTOR 2SC2715-Y	

Ref. No.	Part No.	Description		Remark
Q402	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q403	8-729-901-01	TRANSISTOR	DTC144EK	
Q404	8-729-901-01	TRANSISTOR	DTC144EK	
Q405	8-729-901-06	TRANSISTOR	DTA144EK	
Q406	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q407	8-729-216-22	TRANSISTOR	2SA1162-G	
Q408	8-729-216-22	TRANSISTOR	2SA1162-G	
Q409	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q410	8-729-216-22	TRANSISTOR	2SA1162-G	
Q411	8-729-901-01	TRANSISTOR	DTC144EK	
Q412	8-729-901-01	TRANSISTOR	DTC144EK	
Q413	8-729-901-01	TRANSISTOR	DTC144EK	
Q414	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q415	8-729-216-22	TRANSISTOR	2SA1162-G	
Q416	8-729-216-22	TRANSISTOR	2SA1162-G	
Q417	8-729-901-01	TRANSISTOR	DTC144EK	
Q418	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q419	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q420	8-729-202-38	TRANSISTOR	2SC3326N-A	
Q421	8-729-202-38	TRANSISTOR	2SC3326N-A	
Q422	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q423	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q424	8-729-901-01	TRANSISTOR	DTC144EK	
Q425	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q426	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q427	8-729-216-22	TRANSISTOR	2SA1162-G	
Q428	8-729-216-22	TRANSISTOR	2SA1162-G	
Q429	8-729-901-01	TRANSISTOR	DTC144EK	
Q430	8-729-901-01	TRANSISTOR	DTC144EK	
Q431	8-729-216-22	TRANSISTOR	2SA1162-G	
Q501	8-729-901-06	TRANSISTOR	DTA144EK	
Q502	8-729-901-01	TRANSISTOR	DTC144EK	
Q503	8-729-901-00	TRANSISTOR	DTC124EK	
Q504	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q601	8-729-901-01	TRANSISTOR	DTC144EK	
Q603	8-729-901-01	TRANSISTOR	DTC144EK	
Q604	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q605	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q606	8-729-901-01	TRANSISTOR	DTC144EK	
Q607	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q608	8-729-216-22	TRANSISTOR	2SA1162-G	
Q609	8-729-901-00	TRANSISTOR	DTC124EK	
Q610	8-729-904-04	TRANSISTOR	FMS2	
Q611	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q612	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q613	8-729-901-01	TRANSISTOR	DTC144EK	
Q701	8-729-201-27	TRANSISTOR	2SC2715-Y	
Q702	8-729-202-38	TRANSISTOR	2SC3326N-A	
Q703	8-729-202-38	TRANSISTOR	2SC3326N-A	
Q704	8-729-216-22	TRANSISTOR	2SA1162-G	

Ref. No.	Part No.	Description				Remark
Q706	8-729-201-27	TRANSISTOR	2SC2715-Y			
Q707	8-729-201-27	TRANSISTOR	2SC2715-Y			
Q710	8-729-901-01	TRANSISTOR	DTC144EK			
Q711	8-729-901-01	TRANSISTOR	DTC144EK			
Q712	8-729-901-01	TRANSISTOR	DTC144EK			
Q720	8-729-200-86	TRANSISTOR	2SC2714-O			
Q721	8-729-200-86	TRANSISTOR	2SC2714-O			
Q722	8-729-200-86	TRANSISTOR	2SC2714-O			
Q723	8-729-201-27	TRANSISTOR	2SC2715-Y			
Q724	8-729-901-01	TRANSISTOR	DTC144EK			
Q801	8-729-920-08	TRANSISTOR	DTC124TK			
Q802	8-729-201-27	TRANSISTOR	2SC2715-Y			
Q803	8-729-201-27	TRANSISTOR	2SC2715-Y			
Q804	8-729-201-27	TRANSISTOR	2SC2715-Y			
Q805	8-729-216-22	TRANSISTOR	2SA1162-G			
Q811	8-729-901-01	TRANSISTOR	DTC144EK			
Q901	8-729-901-01	TRANSISTOR	DTC144EK			
Q902	8-729-901-01	TRANSISTOR	DTC144EK			
Q903	8-729-104-25	TRANSISTOR	2SB804-AV			
Q904	8-729-201-27	TRANSISTOR	2SC2715-Y			
		< RESISTOR >				
R101	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R102	1-216-029-00	METAL CHIP	150	5%	1/10W	
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R105	1-216-037-00	METAL CHIP	330	5%	1/10W	
R106	1-216-041-00	METAL CHIP	470	5%	1/10W	
R107	1-216-035-00	METAL CHIP	270	5%	1/10W	
R108	1-216-043-00	METAL CHIP	560	5%	1/10W	
R109	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R110	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R111	1-216-045-00	METAL CHIP	680	5%	1/10W	
R112	1-216-041-00	METAL CHIP	470	5%	1/10W	
R113	1-216-041-00	METAL CHIP	470	5%	1/10W	
R115	1-216-639-11	METAL CHIP	330	0.5%	1/10W	
R116	1-216-639-11	METAL CHIP	330	0.5%	1/10W	
R117	1-216-017-00	METAL CHIP	47	5%	1/10W	
R119	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R120	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R122	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R124	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R125	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R126	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R127	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R128	1-216-041-00	METAL CHIP	470	5%	1/10W	
R130	1-216-033-00	METAL CHIP	220	5%	1/10W	
R137	1-216-033-00	METAL CHIP	220	5%	1/10W	
R139	1-216-295-00	METAL CHIP	0	5%	1/10W	
R140	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	

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Ref. No.	Part No.	Description				Remark
R141	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R142	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R143	1-216-039-00	METAL CHIP	390	5%	1/10W	
R144	1-216-045-00	METAL CHIP	680	5%	1/10W	
R145	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R146	1-216-645-11	METAL CHIP	560	0.5%	1/10W	
R147	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R148	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R149	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R150	1-216-047-00	METAL CHIP	820	5%	1/10W	
R151	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R153	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R154	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R155	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R157	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R158	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R159	1-216-025-00	METAL CHIP	100	5%	1/10W	
R160	1-216-643-11	METAL CHIP	470	0.5%	1/10W	
R161	1-216-295-00	METAL CHIP	0	5%	1/10W	
R162	1-216-045-00	METAL CHIP	680	5%	1/10W	
R163	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R164	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R165	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R166	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R167	1-216-041-00	METAL CHIP	470	5%	1/10W	
R168	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R169	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R170	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R171	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R173	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R174	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R175	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R176	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R177	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R178	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R179	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R180	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R181	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R182	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R183	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R184	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R185	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R186	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R187	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R189	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R190	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R191	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R192	1-216-037-00	METAL CHIP	330	5%	1/10W	
R193	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R195	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R196	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R197	1-216-041-00	METAL CHIP	470	5%	1/10W	
R198	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R199	1-216-045-00	METAL CHIP	680	5%	1/10W	
R200	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R201	1-216-641-11	METAL CHIP	390	0.5%	1/10W	
R202	1-216-627-11	METAL CHIP	100	0.5%	1/10W	
R213	1-216-035-00	METAL CHIP	270	5%	1/10W	
R214	1-216-041-00	METAL CHIP	470	5%	1/10W	
R215	1-216-041-00	METAL CHIP	470	5%	1/10W	
R216	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R217	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R218	1-216-041-00	METAL CHIP	470	5%	1/10W	
R219	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R220	1-216-041-00	METAL CHIP	470	5%	1/10W	
R221	1-216-041-00	METAL CHIP	470	5%	1/10W	
R222	1-216-295-00	METAL CHIP	0	5%	1/10W	
R223	1-216-041-00	METAL CHIP	470	5%	1/10W	
R224	1-216-041-00	METAL CHIP	470	5%	1/10W	
R225	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R226	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R227	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R228	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R229	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R230	1-216-047-00	METAL CHIP	820	5%	1/10W	
R231	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R232	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R233	1-216-064-00	METAL CHIP	4.3K	5%	1/10W	
R234	1-216-041-00	METAL CHIP	470	5%	1/10W	
R235	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R236	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R237	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R238	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R239	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R240	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R241	1-216-041-00	METAL CHIP	470	5%	1/10W	
R242	1-216-295-00	METAL CHIP	0	5%	1/10W	
R243	1-216-643-11	METAL CHIP	470	0.5%	1/10W	
R244	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W	
R245	1-216-043-00	METAL CHIP	560	5%	1/10W	
R246	1-216-017-00	METAL CHIP	47	5%	1/10W	
R247	1-216-041-00	METAL CHIP	470	5%	1/10W	
R252	1-216-047-00	METAL CHIP	820	5%	1/10W	
R301	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R302	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R303	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R304	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W	
R305	1-216-677-11	METAL CHIP	12K	0.5%	1/10W	
R306	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R307	1-216-049-00	METAL CHIP	1K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R308	1-216-295-00	METAL CHIP	0	5%	1/10W	
R309	1-216-295-00	METAL CHIP	0	5%	1/10W	
R310	1-216-033-00	METAL CHIP	220	5%	1/10W	
R311	1-216-033-00	METAL CHIP	220	5%	1/10W	
R313	1-216-633-11	METAL CHIP	180	0.5%	1/10W	
R314	1-216-033-00	METAL CHIP	220	5%	1/10W	
R315	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R316	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W	
R317	1-216-670-11	METAL CHIP	6.2K	0.5%	1/10W	
R318	1-216-033-00	METAL CHIP	220	5%	1/10W	
R320	1-216-033-00	METAL CHIP	220	5%	1/10W	
R321	1-216-032-00	METAL CHIP	200	5%	1/10W	
R323	1-216-643-11	METAL CHIP	470	0.5%	1/10W	
R324	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R325	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R326	1-216-033-00	METAL CHIP	220	5%	1/10W	
R327	1-216-033-00	METAL CHIP	220	5%	1/10W	
R329	1-216-653-11	METAL CHIP	1.2K	0.5%	1/10W	
R330	1-216-045-00	METAL CHIP	680	5%	1/10W	
R331	1-216-039-00	METAL CHIP	390	5%	1/10W	
R332	1-216-645-11	METAL CHIP	560	0.5%	1/10W	
R333	1-216-623-11	METAL CHIP	68	0.5%	1/10W	
R334	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R335	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R336	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R337	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R338	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R339	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R340	1-216-653-11	METAL CHIP	1.2K	0.5%	1/10W	
R341	1-216-641-11	METAL CHIP	390	0.5%	1/10W	
R342	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R343	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R344	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R345	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R346	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R347	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R348	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R349	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R350	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R351	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R353	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R354	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R355	1-216-047-00	METAL CHIP	820	5%	1/10W	
R356	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R357	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R358	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R359	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R360	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R361	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R362	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R363	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R364	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R365	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R366	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R367	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R368	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R369	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R370	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R371	1-216-295-00	METAL CHIP	0	5%	1/10W	
R373	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R374	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R376	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R377	1-216-033-00	METAL CHIP	220	5%	1/10W	
R378	1-216-031-00	METAL CHIP	180	5%	1/10W	
R379	1-216-039-00	METAL CHIP	390	5%	1/10W	
R380	1-216-029-00	METAL CHIP	150	5%	1/10W	
R381	1-216-295-00	METAL CHIP	0	5%	1/10W	
R382	1-216-295-00	METAL CHIP	0	5%	1/10W	
R383	1-216-295-00	METAL CHIP	0	5%	1/10W	
R384	1-216-025-00	METAL CHIP	100	5%	1/10W	
R386	1-216-033-00	METAL CHIP	220	5%	1/10W	
R387	1-216-295-00	METAL CHIP	0	5%	1/10W	
R388	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R389	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R390	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R401	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R402	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R403	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R404	1-216-654-11	METAL CHIP	1.3K	0.5%	1/10W	
R405	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R406	1-216-033-00	METAL CHIP	220	5%	1/10W	
R407	1-216-033-00	METAL CHIP	220	5%	1/10W	
R408	1-216-295-00	METAL CHIP	0	5%	1/10W	
R409	1-216-653-11	METAL CHIP	1.2K	0.5%	1/10W	
R411	1-216-037-00	METAL CHIP	330	5%	1/10W	
R412	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R413	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R414	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R415	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R416	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R417	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R418	1-216-041-00	METAL CHIP	470	5%	1/10W	
R419	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R420	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R421	1-216-062-00	METAL CHIP	3.6K	5%	1/10W	
R422	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R423	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R424	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R425	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R426	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	

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Ref. No.	Part No.	Description				Remark
R427	1-216-045-00	METAL CHIP	680	5%	1/10W	
R428	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R429	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R430	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R431	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R432	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R433	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R434	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R435	1-216-693-11	METAL CHIP	56K	0.5%	1/10W	
R436	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W	
R437	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R438	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R439	1-216-666-11	METAL CHIP	4.3K	0.5%	1/10W	
R440	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R441	1-216-666-11	METAL CHIP	4.3K	0.5%	1/10W	
R442	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R443	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R444	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R445	1-216-295-00	METAL CHIP	0	5%	1/10W	
R446	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W	
R447	1-216-679-11	METAL CHIP	15K	0.5%	1/10W	
R448	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R449	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R450	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R451	1-216-643-11	METAL CHIP	470	0.5%	1/10W	
R452	1-216-643-11	METAL CHIP	470	0.5%	1/10W	
R453	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R454	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W	
R455	1-216-653-11	METAL CHIP	1.2K	0.5%	1/10W	
R456	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R457	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R458	1-216-047-00	METAL CHIP	820	5%	1/10W	
R459	1-216-039-00	METAL CHIP	390	5%	1/10W	
R460	1-216-033-00	METAL CHIP	220	5%	1/10W	
R462	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R463	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R464	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R465	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R466	1-216-643-11	METAL CHIP	470	0.5%	1/10W	
R467	1-216-641-11	METAL CHIP	390	0.5%	1/10W	
R468	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R469	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R470	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R471	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R472	1-216-041-00	METAL CHIP	470	5%	1/10W	
R473	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R474	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R475	1-216-058-00	METAL GLAZE	2.4K	5%	1/10W	
R476	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R477	1-216-041-00	METAL CHIP	470	5%	1/10W	
R478	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R479	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R480	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R481	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R482	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R483	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R484	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R485	1-216-295-00	METAL CHIP	0	5%	1/10W	
R488	1-216-295-00	METAL CHIP	0	5%	1/10W	
R501	1-216-643-11	METAL CHIP	470	0.5%	1/10W	
R502	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W	
R503	1-216-643-11	METAL CHIP	470	0.5%	1/10W	
R504	1-216-661-11	METAL CHIP	2.7K	0.5%	1/10W	
R505	1-216-653-11	METAL CHIP	1.2K	0.5%	1/10W	
R506	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R507	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R508	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R509	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R510	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R511	1-216-647-11	METAL CHIP	680	0.5%	1/10W	
R512	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R513	1-216-645-11	METAL CHIP	560	0.5%	1/10W	
R514	1-216-679-11	METAL CHIP	15K	0.5%	1/10W	
R515	1-216-699-11	METAL CHIP	100K	0.5%	1/10W	
R516	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R517	1-216-641-11	METAL CHIP	390	0.5%	1/10W	
R519	1-216-295-00	METAL CHIP	0	5%	1/10W	
R520	1-216-035-00	METAL CHIP	270	5%	1/10W	
R521	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R522	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R523	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R524	1-216-111-00	METAL CHIP	390K	5%	1/10W	
R525	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R526	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R527	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R528	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R529	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R530	1-216-629-11	METAL CHIP	120	0.5%	1/10W	
R531	1-216-627-11	METAL CHIP	100	0.5%	1/10W	
R532	1-216-611-11	METAL CHIP	22	0.5%	1/10W	
R533	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R534	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R537	1-216-641-11	METAL CHIP	390	0.5%	1/10W	
R538	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R539	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R540	1-216-295-00	METAL CHIP	0	5%	1/10W	
R541	1-216-629-11	METAL CHIP	120	0.5%	1/10W	
R542	1-216-637-11	METAL CHIP	270	0.5%	1/10W	
R543	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R544	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	

Ref. No.	Part No.	Description				Remark
R545	1-216-055-00	METAL CHIP	1. 8K	5%	1/10W	
R546	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R601	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R602	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R603	1-216-639-11	METAL CHIP	330	0. 5%	1/10W	
R604	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R605	1-216-669-11	METAL CHIP	5. 6K	0. 5%	1/10W	
R606	1-216-683-11	METAL CHIP	22K	0. 5%	1/10W	
R607	1-216-667-11	METAL CHIP	4. 7K	0. 5%	1/10W	
R609	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R610	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R612	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R613	1-216-655-11	METAL CHIP	1. 5K	0. 5%	1/10W	
R614	1-216-667-11	METAL CHIP	4. 7K	0. 5%	1/10W	
R616	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R617	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R618	1-216-651-11	METAL CHIP	1K	0. 5%	1/10W	
R619	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R620	1-216-061-00	METAL CHIP	3. 3K	5%	1/10W	
R621	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R622	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R623	1-216-033-00	METAL CHIP	220	5%	1/10W	
R624	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R625	1-216-069-00	METAL CHIP	6. 8K	5%	1/10W	
R626	1-216-295-00	METAL CHIP	0	5%	1/10W	
R627	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R628	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R629	1-216-667-11	METAL CHIP	4. 7K	0. 5%	1/10W	
R632	1-216-645-11	METAL CHIP	560	0. 5%	1/10W	
R633	1-216-659-11	METAL CHIP	2. 2K	0. 5%	1/10W	
R634	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R635	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R636	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R637	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R638	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R639	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R640	1-216-651-11	METAL CHIP	1K	0. 5%	1/10W	
R641	1-216-651-11	METAL CHIP	1K	0. 5%	1/10W	
R642	1-216-055-00	METAL CHIP	1. 8K	5%	1/10W	
R643	1-216-295-00	METAL CHIP	0	5%	1/10W	
R644	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R645	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R646	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R647	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R648	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R649	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R650	1-216-061-00	METAL CHIP	3. 3K	5%	1/10W	
R651	1-216-061-00	METAL CHIP	3. 3K	5%	1/10W	
R652	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R653	1-216-061-00	METAL CHIP	3. 3K	5%	1/10W	
R654	1-216-061-00	METAL CHIP	3. 3K	5%	1/10W	
R655	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R656	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R657	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R658	1-216-039-00	METAL CHIP	390	5%	1/10W	
R659	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R660	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R661	1-216-059-00	METAL CHIP	2. 7K	5%	1/10W	
R662	1-216-069-00	METAL CHIP	6. 8K	5%	1/10W	
R663	1-216-667-11	METAL CHIP	4. 7K	0. 5%	1/10W	
R664	1-216-655-11	METAL CHIP	1. 5K	0. 5%	1/10W	
R665	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R666	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R667	1-216-033-00	METAL CHIP	220	5%	1/10W	
R668	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R669	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R670	1-216-063-00	METAL CHIP	3. 9K	5%	1/10W	
R671	1-216-039-00	METAL CHIP	390	5%	1/10W	
R672	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R673	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R674	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R675	1-216-106-00	METAL CHIP	240K	5%	1/10W	
R676	1-216-106-00	METAL CHIP	240K	5%	1/10W	
R677	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R678	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R699	1-216-069-00	METAL CHIP	6. 8K	5%	1/10W	
R701	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R702	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R703	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R704	1-216-645-11	METAL CHIP	560	0. 5%	1/10W	
R705	1-216-635-11	METAL CHIP	220	0. 5%	1/10W	
R706	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R707	1-216-651-11	METAL CHIP	1K	0. 5%	1/10W	
R708	1-216-053-00	METAL CHIP	1. 5K	5%	1/10W	
R709	1-216-673-11	METAL CHIP	8. 2K	0. 5%	1/10W	
R710	1-216-643-11	METAL CHIP	470	0. 5%	1/10W	
R711	1-216-645-11	METAL CHIP	560	0. 5%	1/10W	
R728	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R729	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R745	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R746	1-216-061-00	METAL CHIP	3. 3K	5%	1/10W	
R748	1-216-025-00	METAL CHIP	100	5%	1/10W	
R750	1-216-043-00	METAL CHIP	560	5%	1/10W	
R751	1-216-037-00	METAL CHIP	330	5%	1/10W	
R752	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R753	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R754	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R755	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R756	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R757	1-216-049-00	METAL CHIP	1K	5%	1/10W	

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Ref. No.	Part No.	Description	Remark
R758	1-216-041-00	METAL CHIP 470 5% 1/10W	
R759	1-216-295-00	METAL CHIP 0 5% 1/10W	
R760	1-216-041-00	METAL CHIP 470 5% 1/10W	
R761	1-216-034-00	METAL CHIP 240 5% 1/10W	
R762	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R763	1-216-037-00	METAL CHIP 330 5% 1/10W	
R764	1-216-037-00	METAL CHIP 330 5% 1/10W	
R765	1-216-041-00	METAL CHIP 470 5% 1/10W	
R766	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R767	1-216-041-00	METAL CHIP 470 5% 1/10W	
R768	1-216-041-00	METAL CHIP 470 5% 1/10W	
R770	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R771	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R772	1-216-041-00	METAL CHIP 470 5% 1/10W	
R773	1-216-041-00	METAL CHIP 470 5% 1/10W	
R774	1-216-660-11	METAL CHIP 2.4K 0.5% 1/10W	
R776	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R801	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R802	1-216-041-00	METAL CHIP 470 5% 1/10W	
R803	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R804	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R805	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R806	1-216-043-00	METAL CHIP 560 5% 1/10W	
R807	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R808	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R809	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R810	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R811	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R812	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R813	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R814	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R815	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R816	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R817	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R818	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R819	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R820	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R821	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R822	1-216-045-00	METAL CHIP 680 5% 1/10W	
R823	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R824	1-216-037-00	METAL CHIP 330 5% 1/10W	
R825	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R826	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R827	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R828	1-216-045-00	METAL CHIP 680 5% 1/10W	
R829	1-216-045-00	METAL CHIP 680 5% 1/10W	
R830	1-216-295-00	METAL CHIP 0 5% 1/10W	
R831	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R837	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R901	1-216-049-00	METAL CHIP 1K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R902	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R903	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R904	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R905	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R907	1-216-041-00	METAL CHIP 470 5% 1/10W	
R910	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R911	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R912	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R913	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R914	1-216-089-00	METAL CHIP 47K 5% 1/10W	

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description	Remark
RV101	1-230-869-11	RES, ADJ, METAL 4.7K	
RV201	1-230-867-11	RES, ADJ, METAL 1K	
RV202	1-230-866-11	RES, ADJ, METAL 470	
RV301	1-230-868-11	RES, ADJ, METAL 2.2K	
RV302	1-230-870-11	RES, ADJ, METAL 10K	
RV303	1-230-870-11	RES, ADJ, METAL 10K	
RV304	1-230-870-11	RES, ADJ, METAL 10K	
RV305	1-230-875-21	RES, ADJ, METAL 220K	
RV401	1-230-873-11	RES, ADJ, METAL 47K	
RV402	1-230-869-11	RES, ADJ, METAL 4.7K	
RV403	1-230-868-11	RES, ADJ, METAL 2.2K	
RV404	1-230-868-11	RES, ADJ, METAL 2.2K	
RV405	1-230-866-11	RES, ADJ, METAL 470	
RV501	1-230-870-11	RES, ADJ, METAL 10K	
RV502	1-230-870-11	RES, ADJ, METAL 10K	
RV503	1-230-876-11	RES, ADJ, METAL 470K	
RV601	1-230-871-11	RES, ADJ, METAL 22K	
RV602	1-230-870-11	RES, ADJ, METAL 10K	
RV700	1-230-866-11	RES, ADJ, METAL 470	
RV801	1-230-873-11	RES, ADJ, METAL 47K	
RV802	1-230-875-21	RES, ADJ, METAL 220K	

(TRAP)

Ref. No.	Part No.	Description	Remark
T101	1-409-466-21	TRAP	
T501	1-235-437-11	BPF, PB C	
T601	1-409-396-11	REC C TRAP	
T602	1-409-394-11	TRAP, CHROMA EMPHASIS	

(CRYSTAL)

Ref. No.	Part No.	Description	Remark
X501	1-567-347-11	OSCILLATOR, CERAMIC	
X601	1-567-504-11	OSCILLATOR, CRYSTAL	
X602	1-567-827-11	VIBRATOR, CRYSTAL	

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Ref. No.	Part No.	Description				Remark
*	A-7063-301-A	IF-38 (P) BOARD, COMPLETE				
		*************************				
		(Ref. No 12000 Series)				
	1-950-641-11	HRANESS (HI-51)				
		< CAPACITOR >				
C001	1-126-154-11	ELECT	47uF	20%	6.3V	
C002	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C003	1-126-157-11	ELECT	10uF	20%	16V	
C004	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C005	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C007	1-126-154-11	ELECT	47uF	20%	6.3V	
C008	1-126-163-11	ELECT	4.7uF	20%	50V	
C009	1-124-589-11	ELECT	47uF	20%	16V	
C010	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C011	1-126-154-11	ELECT	47uF	20%	6.3V	
C012	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C013	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C014	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C015	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C018	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C019	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C020	1-126-163-11	ELECT	4.7uF	20%	50V	
C021	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C022	1-126-154-11	ELECT	47uF	20%	6.3V	
C023	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C024	1-126-154-11	ELECT	47uF	20%	6.3V	
C025	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C026	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C027	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C028	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C029	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C030	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C031	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C032	1-126-154-11	ELECT	47uF	20%	6.3V	
C033	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C034	1-124-589-11	ELECT	47uF	20%	16V	
C035	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C036	1-126-154-11	ELECT	47uF	20%	6.3V	
C037	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C038	1-126-154-11	ELECT	47uF	20%	6.3V	
C039	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C040	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C041	1-128-057-11	ELECT	330uF	20%	6.3V	
C042	1-124-584-00	ELECT	100uF	20%	10V	
C043	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C044	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C045	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C046	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C047	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C048	1-126-157-11	ELECT	10uF	20%	16V	
C049	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C050	1-126-157-11	ELECT	10uF	20%	16V	
C051	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C052	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C053	1-124-584-00	ELECT	100uF	20%	10V	
C101	1-126-154-11	ELECT	47uF	20%	6.3V	
C102	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C103	1-126-154-11	ELECT	47uF	20%	6.3V	
C104	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	
C105	1-163-257-11	CERAMIC CHIP	180PF	5%	50V	
C106	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C107	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C108	1-126-157-11	ELECT	10uF	20%	16V	
C109	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C110	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C111	1-124-584-00	ELECT	100uF	20%	10V	
C112	1-126-160-11	ELECT	1uF	20%	50V	
C113	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C114	1-126-160-11	ELECT	1uF	20%	50V	
C115	1-163-135-00	CERAMIC CHIP	560PF	5%	50V	
C116	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	
C117	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C118	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C119	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C120	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C121	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C122	1-126-160-11	ELECT	1uF	20%	50V	
C123	1-124-465-00	ELECT	0.47uF	20%	50V	
C124	1-126-160-11	ELECT	1uF	20%	50V	
C125	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C126	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C127	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	
C128	1-163-257-11	CERAMIC CHIP	180PF	5%	50V	
C129	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C201	1-126-154-11	ELECT	47uF	20%	6.3V	
C202	1-126-157-11	ELECT	10uF	20%	16V	
C203	1-126-157-11	ELECT	10uF	20%	16V	
C204	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C301	1-126-154-11	ELECT	47uF	20%	6.3V	
C302	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C303	1-126-157-11	ELECT	10uF	20%	16V	
C304	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C305	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C306	1-126-157-11	ELECT	10uF	20%	16V	
C307	1-126-157-11	ELECT	10uF	20%	16V	
C308	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C309	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C310	1-126-157-11	ELECT	10uF	20%	16V	
C311	1-164-232-11	CERAMIC CHIP	0.01uF		50V	

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Ref. No.	Part No.	Description				Remark
C312	1-126-157-11	ELECT	10uF	20%	16V	
C313	1-126-157-11	ELECT	10uF	20%	16V	
C314	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C315	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C316	1-126-157-11	ELECT	10uF	20%	16V	
C317	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C318	1-126-157-11	ELECT	10uF	20%	16V	
C319	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C320	1-126-157-11	ELECT	10uF	20%	16V	
C321	1-126-157-11	ELECT	10uF	20%	16V	
C322	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C323	1-126-157-11	ELECT	10uF	20%	16V	
C324	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C325	1-126-157-11	ELECT	10uF	20%	16V	
C326	1-126-157-11	ELECT	10uF	20%	16V	
C327	1-126-154-11	ELECT	47uF	20%	6.3V	
C328	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C329	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C330	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C340	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C341	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C342	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C343	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C344	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C345	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C346	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C347	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C348	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C349	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C350	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C351	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C352	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C353	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C354	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C355	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C356	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C357	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C358	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C359	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C360	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C361	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C362	1-124-589-11	ELECT	47uF	20%	16V	
C363	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C364	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C365	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C366	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C367	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C368	1-126-157-11	ELECT	10uF	20%	16V	
C369	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C370	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C371	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C372	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C373	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C401	1-124-589-11	ELECT	47uF	20%	16V	
C402	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C403	1-124-584-00	ELECT	100uF	20%	10V	
C404	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C405	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C406	1-124-584-00	ELECT	100uF	20%	10V	
C408	1-163-104-00	CERAMIC CHIP	30PF	5%	50V	
C409	1-124-584-00	ELECT	100uF	20%	10V	
C413	1-126-154-11	ELECT	47uF	20%	6.3V	
C414	1-124-584-00	ELECT	100uF	20%	10V	
C424	1-124-584-00	ELECT	100uF	20%	10V	
C428	1-126-154-11	ELECT	47uF	20%	6.3V	
C429	1-124-584-00	ELECT	100uF	20%	10V	
C430	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C431	1-124-584-00	ELECT	100uF	20%	10V	
C432	1-126-157-11	ELECT	10uF	20%	16V	
C433	1-126-154-11	ELECT	47uF	20%	6.3V	
C434	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C435	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C436	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C440	1-126-157-11	ELECT	10uF	20%	16V	
C441	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C501	1-124-589-11	ELECT	47uF	20%	16V	
C502	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C503	1-124-589-11	ELECT	47uF	20%	16V	
C504	1-163-091-00	CERAMIC CHIP	8PF		50V	
C505	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C506	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C507	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C508	1-124-589-11	ELECT	47uF	20%	16V	
C509	1-163-091-00	CERAMIC CHIP	8PF		50V	
C510	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C511	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C512	1-124-589-11	ELECT	47uF	20%	16V	
C513	1-124-589-11	ELECT	47uF	20%	16V	
C514	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C515	1-124-589-11	ELECT	47uF	20%	16V	
C516	1-163-103-00	CERAMIC CHIP	27PF	5%	50V	
C517	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C518	1-126-157-11	ELECT	10uF	20%	16V	
C519	1-126-157-11	ELECT	10uF	20%	16V	
C520	1-126-157-11	ELECT	10uF	20%	16V	
C521	1-124-589-11	ELECT	47uF	20%	16V	
C522	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C523	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C524	1-124-584-00	ELECT	100uF	20%	10V	
C525	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	

Ref. No.	Part No.	Description				Remark
C526	1-126-157-11	ELECT	10uF	20%	16V	
C527	1-124-584-00	ELECT	100uF	20%	10V	
C529	1-126-157-11	ELECT	10uF	20%	16V	
C530	1-124-589-11	ELECT	47uF	20%	16V	
C531	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C532	1-126-157-11	ELECT	10uF	20%	16V	
C533	1-124-584-00	ELECT	100uF	20%	10V	
C534	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C535	1-124-589-11	ELECT	47uF	20%	16V	
C536	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C537	1-163-091-00	CERAMIC CHIP	8PF		50V	
C538	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C539	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C540	1-124-589-11	ELECT	47uF	20%	16V	
C541	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C543	1-126-157-11	ELECT	10uF	20%	16V	
C544	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C545	1-126-157-11	ELECT	10uF	20%	16V	
C546	1-126-157-11	ELECT	10uF	20%	16V	
C547	1-126-157-11	ELECT	10uF	20%	16V	
C548	1-126-157-11	ELECT	10uF	20%	16V	
C549	1-124-589-11	ELECT	47uF	20%	16V	
C550	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C551	1-126-157-11	ELECT	10uF	20%	16V	
C554	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C555	1-126-157-11	ELECT	10uF	20%	16V	
C556	1-126-157-11	ELECT	10uF	20%	16V	
C558	1-126-157-11	ELECT	10uF	20%	16V	
C559	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C560	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C561	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C562	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C563	1-126-154-11	ELECT	47uF	20%	6.3V	
C564	1-126-157-11	ELECT	10uF	20%	16V	
C565	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C566	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C568	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C569	1-126-154-11	ELECT	47uF	20%	6.3V	
C570	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C571	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C572	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C575	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C701	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C702	1-124-589-11	ELECT	47uF	20%	16V	
C703	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C704	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C705	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C706	1-130-479-00	MYLAR	0.0047uF	5%	50V	
C707	1-130-487-00	MYLAR	0.022uF	5%	50V	
C708	1-164-232-11	CERAMIC CHIP	0.01uF		50V	

Ref. No.	Part No.	Description				Remark
C709	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C710	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C711	1-126-157-11	ELECT	10uF	20%	16V	
C712	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C713	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C714	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C715	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C716	1-126-160-11	ELECT	1uF	20%	50V	
C717	1-163-036-00	CERAMIC CHIP	0.068uF		50V	
C718	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C719	1-124-465-00	ELECT	0.47uF	20%	50V	
C720	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C721	1-126-157-11	ELECT	10uF	20%	16V	
C723	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C724	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C725	1-126-160-11	ELECT	1uF	20%	50V	
C726	1-163-106-00	CERAMIC CHIP	36PF	5%	50V	
C727	1-163-241-11	CERAMIC CHIP	39PF	5%	50V	
C728	1-124-589-11	ELECT	47uF	20%	16V	
C729	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C730	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C731	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C732	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C733	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C734	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C735	1-126-157-11	ELECT	10uF	20%	16V	
C736	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C737	1-124-589-11	ELECT	47uF	20%	16V	
C738	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C739	1-126-157-11	ELECT	10uF	20%	16V	
C740	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C741	1-126-160-11	ELECT	1uF	20%	50V	
C742	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C743	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C744	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C745	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C746	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C747	1-124-584-00	ELECT	100uF	20%	10V	
C748	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C749	1-126-154-11	ELECT	47uF	20%	6.3V	
C750	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C751	1-126-154-11	ELECT	47uF	20%	6.3V	
C752	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C753	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C754	1-126-157-11	ELECT	10uF	20%	16V	
C801	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C802	1-124-589-11	ELECT	47uF	20%	16V	
C803	1-124-589-11	ELECT	47uF	20%	16V	
C804	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C805	1-124-589-11	ELECT	47uF	20%	16V	

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Ref. No.	Part No.	Description				Remark
C806	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C807	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C808	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C809	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C810	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C811	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C812	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C813	1-126-157-11	ELECT	10uF	20%	16V	
C816	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C817	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C818	1-124-589-11	ELECT	47uF	20%	16V	
C819	1-124-589-11	ELECT	47uF	20%	16V	
C820	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C821	1-163-088-00	CERAMIC CHIP	5PF		50V	
C822	1-124-584-00	ELECT	100uF	20%	10V	
C823	1-124-584-00	ELECT	100uF	20%	10V	
C824	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C825	1-124-604-00	ELECT	330uF	20%	10V	
C826	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C827	1-126-157-11	ELECT	10uF	20%	16V	
C828	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C829	1-126-157-11	ELECT	10uF	20%	16V	
C830	1-124-589-11	ELECT	47uF	20%	16V	
C831	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C832	1-124-589-11	ELECT	47uF	20%	16V	
C833	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C834	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	
C835	1-126-157-11	ELECT	10uF	20%	16V	
C836	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C837	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C838	1-124-589-11	ELECT	47uF	20%	16V	
C839	1-126-157-11	ELECT	10uF	20%	16V	
C840	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C841	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C842	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C843	1-126-157-11	ELECT	10uF	20%	16V	
C844	1-126-157-11	ELECT	10uF	20%	16V	
C845	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C846	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C901	1-126-163-11	ELECT	4.7uF	20%	50V	
C902	1-126-163-11	ELECT	4.7uF	20%	50V	
C903	1-124-589-11	ELECT	47uF	20%	16V	
C904	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C905	1-126-163-11	ELECT	4.7uF	20%	50V	
C906	1-124-584-00	ELECT	100uF	20%	10V	
C907	1-124-584-00	ELECT	100uF	20%	10V	
C908	1-126-163-11	ELECT	4.7uF	20%	50V	
C909	1-126-163-11	ELECT	4.7uF	20%	50V	
C910	1-126-163-11	ELECT	4.7uF	20%	50V	
C911	1-126-163-11	ELECT	4.7uF	20%	50V	

Ref. No.	Part No.	Description				Remark
C912	1-124-584-00	ELECT	100uF	20%	10V	
C913	1-124-584-00	ELECT	100uF	20%	10V	
C914	1-126-163-11	ELECT	4.7uF	20%	50V	
C915	1-124-589-11	ELECT	47uF	20%	16V	
C916	1-124-472-11	ELECT	470uF	20%	10V	
C917	1-124-472-11	ELECT	470uF	20%	10V	
C918	1-126-157-11	ELECT	10uF	20%	16V	
C919	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C920	1-126-157-11	ELECT	10uF	20%	16V	
C921	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C922	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C923	1-124-584-00	ELECT	100uF	20%	10V	
C924	1-126-154-11	ELECT	47uF	20%	6.3V	
C927	1-126-157-11	ELECT	10uF	20%	16V	
C928	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C929	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C930	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C931	1-126-157-11	ELECT	10uF	20%	16V	

(CONNECTOR)

Ref. No.	Part No.	Description	Remark
CN301	1-506-473-11	PIN, CONNECTOR 8P	
CN302	1-506-469-11	PIN, CONNECTOR 4P	
CN401	1-506-470-11	PIN, CONNECTOR 5P	
CN501	1-506-472-11	PIN, CONNECTOR 7P	
CN502	1-506-473-11	PIN, CONNECTOR 8P	
* CN701	1-566-206-11	PIN, CONNECTOR (PC BOARD) 13P	
* CN702	1-566-204-11	PIN, CONNECTOR (PC BOARD) 11P	
CN901	1-506-471-11	PIN, CONNECTOR 6P	
CN902	1-506-473-11	PIN, CONNECTOR 8P	
CN903	1-506-473-11	PIN, CONNECTOR 8P	

(CAP, CHIP TRIMMER)

Ref. No.	Part No.	Description	Remark
CV101	1-141-368-11	CAP, CHIP TRIMMER 30P	

(DIODE)

Ref. No.	Part No.	Description	Remark
D001	8-719-400-18	DIODE MA152WK	
D701	8-719-400-18	DIODE MA152WK	
D702	8-719-908-30	DIODE DA106K	

(INDUCTOR)

Ref. No.	Part No.	Description	Remark
FB001	1-412-364-11	INDUCTOR CHIP 0UH	
FB002	1-412-364-11	INDUCTOR CHIP 0UH	
FB003	1-412-364-11	INDUCTOR CHIP 0UH	

(FILTER)

Ref. No.	Part No.	Description	Remark
FL001	1-236-925-11	FILTER, LOW PASS	
FL002	1-239-153-21	FILTER, BAND PASS (4.43MHz)	
FL003	1-236-564-11	FILTER, LOW PASS	
FL401	1-236-564-11	FILTER, LOW PASS	
FL402	1-235-779-11	LPF	

Ref. No.	Part No.	Description	Remark
FL403	1-236-835-11	FILTER, BAND PASS	
FL501	1-415-637-11	DL (LC) (150ns)	
FL502	1-415-637-11	DL (LC) (150ns)	
FL503	1-415-637-11	DL (LC) (150ns)	
FL801	1-415-821-11	DELAY LINE, LC (113NS)	
FL802	1-415-821-11	DELAY LINE, LC (113NS)	
FL803	1-415-821-11	DELAY LINE, LC (113NS)	
FL804	1-415-551-11	DELAY LINE 140NS	
FL805	1-235-617-11	FILTER, LOW-PASS (1MHz)	
FL901	1-236-564-11	FILTER, LOW PASS	
FL902	1-236-835-11	FILTER, BAND PASS (4.43MHz)	

〈 IC 〉

Ref. No.	Part No.	Description	Remark
IC001	8-759-710-29	IC NJM2235M	
IC002	8-752-334-55	IC CXD1175AM	
IC004	8-752-342-61	IC CXD2105AQ	
IC101	8-759-603-54	IC M51271FP	
IC301	8-759-710-29	IC NJM2235M	
IC302	8-759-710-86	IC NJM2233BM	
IC303	8-759-710-07	IC NJM2234M	
IC304	8-759-710-07	IC NJM2234M	
IC306	8-759-710-86	IC NJM2233BM	
IC307	8-759-710-07	IC NJM2234M	
IC308	8-759-710-86	IC NJM2233BM	
IC309	8-759-710-07	IC NJM2234M	
IC310	8-759-710-86	IC NJM2233BM	
IC311	8-759-710-07	IC NJM2234M	
IC312	8-759-710-07	IC NJM2234M	
IC314	8-759-710-86	IC NJM2233BM	
IC315	8-759-710-07	IC NJM2234M	
IC316	8-759-710-86	IC NJM2233BM	
IC401	8-759-710-86	IC NJM2233BM	
IC501	8-759-200-60	IC TA7060AP	
IC502	8-759-200-60	IC TA7060AP	
IC503	8-759-400-06	IC AN608P	
IC504	8-759-710-07	IC NJM2234M	
IC505	8-759-710-07	IC NJM2234M	
IC701	8-759-009-10	IC MC14069UBF	
IC702	8-759-032-11	IC MC74HC04AF	
IC703	8-759-009-51	IC MC14538BF	
IC704	8-759-009-10	IC MC14069UBF	
IC705	8-759-710-61	IC NJM2229M	
IC706	8-759-710-61	IC NJM2229M	
IC707	8-759-630-81	IC M50455-079FP	
IC708	8-759-710-62	IC NJM2246M	
IC709	8-759-972-26	IC LM1881N	
IC710	8-759-032-11	IC MC74HC04AF	
IC801	8-759-200-60	IC TA7060AP	
IC802	8-759-402-33	IC AN607P	
IC803	8-752-201-30	IC CX22013	
IC804	8-759-969-13	IC SN16913P	
IC805	8-759-101-12	IC uPC311G2	
IC901	8-752-009-51	IC CX20095A	
IC902	8-752-009-51	IC CX20095A	

〈 COIL 〉

Ref. No.	Part No.	Description	Remark
L001	1-408-984-21	INDUCTOR 150uH	
L002	1-408-979-21	INDUCTOR 56uH	
L003	1-408-979-21	INDUCTOR 56uH	
L004	1-408-979-21	INDUCTOR 56uH	
L101	1-408-979-21	INDUCTOR 56uH	
L102	1-408-981-21	INDUCTOR 82uH	
L103	1-408-968-21	INDUCTOR 6.8uH	
L104	1-407-169-XX	INDUCTOR 100uH	
L105	1-408-981-21	INDUCTOR 82uH	
L106	1-408-968-21	INDUCTOR 6.8uH	
L301	1-408-979-21	INDUCTOR 56uH	
L302	1-408-979-21	INDUCTOR 56uH	
L401	1-408-979-21	INDUCTOR 56uH	
L402	1-408-975-21	INDUCTOR 27uH	
L407	1-408-979-21	INDUCTOR 56uH	
L501	1-408-979-21	INDUCTOR 56uH	
L502	1-408-962-21	INDUCTOR 2.2uH	
L503	1-408-962-21	INDUCTOR 2.2uH	
L504	1-408-989-21	INDUCTOR 470uH	
L505	1-408-962-21	INDUCTOR 2.2uH	
L506	1-410-071-11	INDUCTOR 10mH	
L509	1-408-979-21	INDUCTOR 56uH	
L510	1-408-979-21	INDUCTOR 56uH	
L511	1-408-979-21	INDUCTOR 56uH	
L701	1-408-979-21	INDUCTOR 56uH	
L702	1-408-972-21	INDUCTOR 15uH	
L703	1-408-979-21	INDUCTOR 56uH	
L704	1-408-979-21	INDUCTOR 56uH	
L801	1-408-979-21	INDUCTOR 56uH	
L802	1-408-979-21	INDUCTOR 56uH	
L804	1-408-964-21	INDUCTOR 3.3uH	
L805	1-408-979-21	INDUCTOR 56uH	
L901	1-408-979-21	INDUCTOR 56uH	
L902	1-408-979-21	INDUCTOR 56uH	
L903	1-408-979-21	INDUCTOR 56uH	

〈 TRANSISTOR 〉

Ref. No.	Part No.	Description	Remark
Q001	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q002	8-729-216-22	TRANSISTOR 2SA1162-G	
Q003	8-729-216-22	TRANSISTOR 2SA1162-G	
Q004	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q005	8-729-216-22	TRANSISTOR 2SA1162-G	
Q006	8-729-216-22	TRANSISTOR 2SA1162-G	
Q007	8-729-120-28	TRANSISTOR 2SC1623-L5L6	

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Ref. No.	Part No.	Description	Remark
Q008	8-729-216-22	TRANSISTOR 2SA1162-G	
Q009	8-729-216-22	TRANSISTOR 2SA1162-G	
Q010	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q011	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q012	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q101	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q102	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q103	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q107	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q201	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q202	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q203	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q204	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q205	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q206	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q301	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q302	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q303	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q304	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q305	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q306	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q307	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q308	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q309	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q310	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q401	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q402	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q403	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q404	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q405	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q410	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q411	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q412	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q413	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q414	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q415	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q416	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q417	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q501	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q502	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q503	8-729-901-06	TRANSISTOR DTA144EK	
Q504	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q505	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q506	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q507	8-729-901-06	TRANSISTOR DTA144EK	
Q508	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q509	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q510	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q511	8-729-901-01	TRANSISTOR DTC144EK	
Q512	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q513	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q514	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q515	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q516	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q517	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q518	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q519	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q520	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q521	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q522	8-729-901-06	TRANSISTOR DTA144EK	
Q523	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q524	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q525	8-729-901-06	TRANSISTOR DTA144EK	
Q526	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q527	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q528	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q529	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q530	8-729-901-06	TRANSISTOR DTA144EK	
Q531	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q532	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q533	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q534	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q535	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q536	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q537	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q538	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q539	8-729-901-06	TRANSISTOR DTA144EK	
Q540	8-729-901-06	TRANSISTOR DTA144EK	
Q541	8-729-901-06	TRANSISTOR DTA144EK	
Q542	8-729-901-01	TRANSISTOR DTC144EK	
Q543	8-729-901-01	TRANSISTOR DTC144EK	
Q701	8-729-901-01	TRANSISTOR DTC144EK	
Q702	8-729-901-01	TRANSISTOR DTC144EK	
Q703	8-729-216-22	TRANSISTOR 2SA1162-G	
Q704	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q705	8-729-216-22	TRANSISTOR 2SA1162-G	
Q706	8-729-216-22	TRANSISTOR 2SA1162-G	
Q707	8-729-216-22	TRANSISTOR 2SA1162-G	
Q708	8-729-901-01	TRANSISTOR DTC144EK	
Q801	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q802	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q803	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q804	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q805	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q806	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q807	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q808	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q809	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q810	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q811	8-729-100-66	TRANSISTOR 2SC1623-L6	

Ref. No.	Part No.	Description				Remark
Q812	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q813	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q814	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q815	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q816	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q817	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q818	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q819	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q820	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q821	8-729-320-17	TRANSISTOR	2SA1122-CD			
Q822	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q901	8-729-216-22	TRANSISTOR	2SA1162-G			
Q902	8-729-216-22	TRANSISTOR	2SA1162-G			
Q903	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q904	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q905	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q906	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q907	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q908	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q909	8-729-100-66	TRANSISTOR	2SC1623-L6			
Q910	8-729-100-66	TRANSISTOR	2SC1623-L6			
		(RESISTOR)				
R001	1-216-025-00	METAL CHIP	100	5%	1/10W	
R002	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R003	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R004	1-216-043-00	METAL CHIP	560	5%	1/10W	
R005	1-216-033-00	METAL CHIP	220	5%	1/10W	
R006	1-216-041-00	METAL CHIP	470	5%	1/10W	
R007	1-216-013-00	METAL CHIP	33	5%	1/10W	
R008	1-216-041-00	METAL CHIP	470	5%	1/10W	
R009	1-216-041-00	METAL CHIP	470	5%	1/10W	
R010	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R011	1-216-025-00	METAL CHIP	100	5%	1/10W	
R012	1-216-025-00	METAL CHIP	100	5%	1/10W	
R015	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R016	1-216-035-00	METAL CHIP	270	5%	1/10W	
R017	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R018	1-216-033-00	METAL CHIP	220	5%	1/10W	
R019	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R020	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R021	1-216-033-00	METAL CHIP	220	5%	1/10W	
R022	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R023	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R024	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R025	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R026	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R027	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R028	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R029	1-216-081-00	METAL CHIP	22K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R030	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R031	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R033	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R034	1-216-025-00	METAL CHIP	100	5%	1/10W	
R035	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R036	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R037	1-216-041-00	METAL CHIP	470	5%	1/10W	
R038	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R039	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R040	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R041	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R042	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R043	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R044	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R051	1-216-295-00	METAL CHIP	0	5%	1/10W	
R052	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R053	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R101	1-216-025-00	METAL CHIP	100	5%	1/10W	
R102	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R103	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R104	1-216-029-00	METAL CHIP	150	5%	1/10W	
R105	1-216-041-00	METAL CHIP	470	5%	1/10W	
R106	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R107	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R108	1-216-119-00	METAL CHIP	820K	5%	1/10W	
R109	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R110	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R111	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R112	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R113	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R114	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R115	1-216-025-00	METAL CHIP	100	5%	1/10W	
R116	1-216-021-00	METAL CHIP	68	5%	1/10W	
R117	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R118	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R119	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R120	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R121	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R122	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R123	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R124	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R125	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R126	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R127	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R128	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R129	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R130	1-216-039-00	METAL CHIP	390	5%	1/10W	
R131	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R150	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R151	1-216-081-00	METAL CHIP	22K	5%	1/10W	

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Ref. No.	Part No.	Description				Remark
R152	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R158	1-216-295-00	METAL CHIP	0	5%	1/10W	
R200	1-216-295-00	METAL CHIP	0	5%	1/10W	
R201	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R202	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R203	1-216-041-00	METAL CHIP	470	5%	1/10W	
R204	1-216-037-00	METAL CHIP	330	5%	1/10W	
R205	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R206	1-216-043-00	METAL CHIP	560	5%	1/10W	
R207	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R208	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R209	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R210	1-216-025-00	METAL CHIP	100	5%	1/10W	
R211	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R212	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R213	1-216-295-00	METAL CHIP	0	5%	1/10W	
R214	1-216-041-00	METAL CHIP	470	5%	1/10W	
R215	1-216-034-00	METAL CHIP	240	5%	1/10W	
R216	1-216-045-00	METAL CHIP	680	5%	1/10W	
R217	1-216-043-00	METAL CHIP	560	5%	1/10W	
R218	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R219	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R220	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R221	1-216-037-00	METAL CHIP	330	5%	1/10W	
R301	1-216-025-00	METAL CHIP	100	5%	1/10W	
R302	1-216-025-00	METAL CHIP	100	5%	1/10W	
R303	1-216-025-00	METAL CHIP	100	5%	1/10W	
R304	1-216-025-00	METAL CHIP	100	5%	1/10W	
R306	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R307	1-216-025-00	METAL CHIP	100	5%	1/10W	
R308	1-216-295-00	METAL CHIP	0	5%	1/10W	
R309	1-216-025-00	METAL CHIP	100	5%	1/10W	
R310	1-216-025-00	METAL CHIP	100	5%	1/10W	
R311	1-216-025-00	METAL CHIP	100	5%	1/10W	
R312	1-216-025-00	METAL CHIP	100	5%	1/10W	
R313	1-216-025-00	METAL CHIP	100	5%	1/10W	
R314	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R315	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R316	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R317	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R318	1-216-037-00	METAL CHIP	330	5%	1/10W	
R319	1-216-037-00	METAL CHIP	330	5%	1/10W	
R320	1-216-037-00	METAL CHIP	330	5%	1/10W	
R321	1-216-037-00	METAL CHIP	330	5%	1/10W	
R323	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R324	1-216-295-00	METAL CHIP	0	5%	1/10W	
R325	1-216-037-00	METAL CHIP	330	5%	1/10W	
R326	1-216-037-00	METAL CHIP	330	5%	1/10W	
R327	1-216-037-00	METAL CHIP	330	5%	1/10W	
R328	1-216-037-00	METAL CHIP	330	5%	1/10W	
R329	1-216-037-00	METAL CHIP	330	5%	1/10W	
R330	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R331	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R332	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R333	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R334	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R335	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R336	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R337	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R338	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R339	1-216-025-00	METAL CHIP	100	5%	1/10W	
R340	1-216-037-00	METAL CHIP	330	5%	1/10W	
R341	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R401	1-216-025-00	METAL CHIP	100	5%	1/10W	
R402	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R403	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R404	1-216-041-00	METAL CHIP	470	5%	1/10W	
R405	1-216-518-00	METAL GLAZE	2.2K	1%	1/10W	
R406	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R407	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R408	1-218-150-11	METAL GLAZE	1.2K	1%	1/10W	
R409	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R410	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R411	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R412	1-216-033-00	METAL CHIP	220	5%	1/10W	
R413	1-216-295-00	METAL CHIP	0	5%	1/10W	
R414	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R415	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R416	1-216-295-00	METAL CHIP	0	5%	1/10W	
R417	1-216-041-00	METAL CHIP	470	5%	1/10W	
R419	1-216-040-00	METAL GLAZE	430	5%	1/10W	
R420	1-216-043-00	METAL CHIP	560	5%	1/10W	
R421	1-216-043-00	METAL CHIP	560	5%	1/10W	
R422	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R423	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R424	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R441	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R442	1-218-152-11	METAL GLAZE	1.5K	1%	1/10W	
R443	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R444	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R445	1-216-295-00	METAL CHIP	0	5%	1/10W	
R446	1-216-041-00	METAL CHIP	470	5%	1/10W	
R448	1-216-041-00	METAL CHIP	470	5%	1/10W	
R449	1-216-043-00	METAL CHIP	560	5%	1/10W	
R450	1-216-043-00	METAL CHIP	560	5%	1/10W	
R451	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R452	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R453	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R454	1-216-025-00	METAL CHIP	100	5%	1/10W	
R455	1-216-079-00	METAL CHIP	18K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R456	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R457	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R458	1-216-025-00	METAL CHIP	100	5%	1/10W	
R459	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R460	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R461	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R462	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R463	1-218-150-11	METAL GLAZE	1.2K	1%	1/10W	
R464	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R465	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R466	1-216-295-00	METAL CHIP	0	5%	1/10W	
R467	1-216-041-00	METAL CHIP	470	5%	1/10W	
R469	1-216-040-00	METAL GLAZE	430	5%	1/10W	
R470	1-216-043-00	METAL CHIP	560	5%	1/10W	
R471	1-216-043-00	METAL CHIP	560	5%	1/10W	
R472	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R473	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R474	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R501	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R502	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R503	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R504	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R505	1-218-156-11	METAL GLAZE	8.2K	1%	1/10W	
R506	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R507	1-216-047-00	METAL CHIP	820	5%	1/10W	
R508	1-216-295-00	METAL CHIP	0	5%	1/10W	
R509	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R510	1-216-295-00	METAL CHIP	0	5%	1/10W	
R511	1-216-518-00	METAL GLAZE	2.2K	1%	1/10W	
R512	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R513	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R514	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R515	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R516	1-218-156-11	METAL GLAZE	8.2K	1%	1/10W	
R517	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R518	1-216-327-11	METAL GLAZE	2K	1%	1/10W	
R519	1-216-327-11	METAL GLAZE	2K	1%	1/10W	
R520	1-216-047-00	METAL CHIP	820	5%	1/10W	
R521	1-216-295-00	METAL CHIP	0	5%	1/10W	
R522	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R523	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R524	1-216-518-00	METAL GLAZE	2.2K	1%	1/10W	
R525	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R526	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R527	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R528	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R529	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R530	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R531	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R532	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R534	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R535	1-216-041-00	METAL CHIP	470	5%	1/10W	
R536	1-216-037-00	METAL CHIP	330	5%	1/10W	
R537	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R538	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R539	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R540	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R541	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R542	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R543	1-216-037-00	METAL CHIP	330	5%	1/10W	
R544	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R545	1-216-041-00	METAL CHIP	470	5%	1/10W	
R546	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R547	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R548	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R549	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R550	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R551	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R552	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R553	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R554	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R555	1-216-041-00	METAL CHIP	470	5%	1/10W	
R556	1-216-037-00	METAL CHIP	330	5%	1/10W	
R557	1-216-045-00	METAL CHIP	680	5%	1/10W	
R558	1-216-043-00	METAL CHIP	560	5%	1/10W	
R559	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R560	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R561	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R562	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R563	1-216-621-11	METAL CHIP	56	0.50%	1/10W	
R564	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R565	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R566	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R567	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R568	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R569	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R570	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R571	1-216-295-00	METAL CHIP	0	5%	1/10W	
R572	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R573	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R574	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R575	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R576	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R577	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R578	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R579	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R580	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R581	1-218-156-11	METAL GLAZE	8.2K	1%	1/10W	
R582	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R583	1-216-327-11	METAL GLAZE	2K	1%	1/10W	

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Ref. No.	Part No.	Description				Remark
R584	1-216-327-11	METAL GLAZE	2K	1%	1/10W	
R585	1-216-047-00	METAL CHIP	820	5%	1/10W	
R586	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R587	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R588	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R589	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R590	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R591	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R592	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R593	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R594	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R595	1-216-041-00	METAL CHIP	470	5%	1/10W	
R596	1-216-041-00	METAL CHIP	470	5%	1/10W	
R597	1-216-045-00	METAL CHIP	680	5%	1/10W	
R598	1-216-043-00	METAL CHIP	560	5%	1/10W	
R599	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R600	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R601	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R602	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R603	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R604	1-216-039-00	METAL CHIP	390	5%	1/10W	
R605	1-216-041-00	METAL CHIP	470	5%	1/10W	
R606	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R607	1-216-037-00	METAL CHIP	330	5%	1/10W	
R610	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R611	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R612	1-216-031-00	METAL CHIP	180	5%	1/10W	
R613	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R614	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R615	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R616	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R617	1-216-041-00	METAL CHIP	470	5%	1/10W	
R618	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R619	1-216-295-00	METAL CHIP	0	5%	1/10W	
R620	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R621	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R622	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R623	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R624	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R626	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R628	1-216-327-11	METAL GLAZE	2K	1%	1/10W	
R629	1-216-327-11	METAL GLAZE	2K	1%	1/10W	
R630	1-216-295-00	METAL CHIP	0	5%	1/10W	
R631	1-216-737-11	METAL GLAZE	1K	1%	1/10W	
R632	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R634	1-216-295-00	METAL CHIP	0	5%	1/10W	
R701	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R702	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R703	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R704	1-216-098-00	METAL CHIP	110K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R705	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R706	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R707	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R708	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R709	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R710	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R711	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R712	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R713	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R714	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R715	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R716	1-216-039-00	METAL CHIP	390	5%	1/10W	
R717	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R718	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R719	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R720	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R721	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R722	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R723	1-216-295-00	METAL CHIP	0	5%	1/10W	
R724	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R725	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R726	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R727	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R728	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R729	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R730	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R731	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R732	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R733	1-216-025-00	METAL CHIP	100	5%	1/10W	
R734	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R735	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R736	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R737	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R739	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R740	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R741	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R742	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R743	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R744	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R745	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R746	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R747	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R748	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R749	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R750	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R751	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R752	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R753	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R801	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R802	1-216-073-00	METAL CHIP	10K	5%	1/10W	

Ref. No.	Part No.	Description	Remark
R803	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R804	1-216-036-00	METAL CHIP 300 5% 1/10W	
R805	1-216-045-00	METAL CHIP 680 5% 1/10W	
R806	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R807	1-216-041-00	METAL CHIP 470 5% 1/10W	
R808	1-216-052-00	METAL CHIP 1.3K 5% 1/10W	
R809	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R810	1-216-033-00	METAL CHIP 220 5% 1/10W	
R811	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R812	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R813	1-216-043-00	METAL CHIP 560 5% 1/10W	
R815	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R816	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R817	1-216-033-00	METAL CHIP 220 5% 1/10W	
R818	1-216-033-00	METAL CHIP 220 5% 1/10W	
R820	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R821	1-216-047-00	METAL CHIP 820 5% 1/10W	
R822	1-216-295-00	METAL CHIP 0 5% 1/10W	
R823	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R824	1-216-295-00	METAL CHIP 0 5% 1/10W	
R825	1-216-025-00	METAL CHIP 100 5% 1/10W	
R826	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R827	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R828	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R829	1-216-033-00	METAL CHIP 220 5% 1/10W	
R830	1-216-033-00	METAL CHIP 220 5% 1/10W	
R831	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R832	1-216-047-00	METAL CHIP 820 5% 1/10W	
R833	1-216-041-00	METAL CHIP 470 5% 1/10W	
R834	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R835	1-216-041-00	METAL CHIP 470 5% 1/10W	
R836	1-216-295-00	METAL CHIP 0 5% 1/10W	
R837	1-216-041-00	METAL CHIP 470 5% 1/10W	
R838	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R839	1-216-035-00	METAL CHIP 270 5% 1/10W	
R840	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R841	1-216-295-00	METAL CHIP 0 5% 1/10W	
R842	1-216-047-00	METAL CHIP 820 5% 1/10W	
R843	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R844	1-216-043-00	METAL CHIP 560 5% 1/10W	
R845	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R846	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R847	1-216-045-00	METAL CHIP 680 5% 1/10W	
R848	1-216-033-00	METAL CHIP 220 5% 1/10W	
R849	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R850	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R851	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R852	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R853	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R854	1-216-025-00	METAL CHIP 100 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R855	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R856	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R857	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R858	1-216-033-00	METAL CHIP 220 5% 1/10W	
R859	1-216-033-00	METAL CHIP 220 5% 1/10W	
R860	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R861	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R862	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R863	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R864	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R865	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R866	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R867	1-216-041-00	METAL CHIP 470 5% 1/10W	
R869	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R870	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R871	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R872	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R873	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R874	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R901	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R902	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R904	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R905	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R906	1-216-022-00	METAL CHIP 75 5% 1/10W	
R908	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R909	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R910	1-216-022-00	METAL CHIP 75 5% 1/10W	
R911	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R912	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R914	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R915	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R916	1-216-022-00	METAL CHIP 75 5% 1/10W	
R918	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R919	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R920	1-216-022-00	METAL CHIP 75 5% 1/10W	
R921	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R922	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R923	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R924	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R925	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R926	1-216-022-00	METAL CHIP 75 5% 1/10W	
R927	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R928	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R929	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R930	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R931	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R932	1-216-022-00	METAL CHIP 75 5% 1/10W	
R933	1-216-022-00	METAL CHIP 75 5% 1/10W	
R934	1-216-022-00	METAL CHIP 75 5% 1/10W	
R935	1-216-022-00	METAL CHIP 75 5% 1/10W	

Ref. No.	Part No.	Description				Remark
R936	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R937	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R938	1-216-295-00	METAL CHIP	0	5%	1/10W	
R939	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R940	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R941	1-216-041-00	METAL CHIP	470	5%	1/10W	
R942	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R943	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R944	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R945	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R946	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R947	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R948	1-216-041-00	METAL CHIP	470	5%	1/10W	
R949	1-216-033-00	METAL CHIP	220	5%	1/10W	
R950	1-216-043-00	METAL CHIP	560	5%	1/10W	
R951	1-216-043-00	METAL CHIP	560	5%	1/10W	
R952	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R953	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R954	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R955	1-216-295-00	METAL CHIP	0	5%	1/10W	
R956	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R957	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R958	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R959	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R960	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R961	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R962	1-216-033-00	METAL CHIP	220	5%	1/10W	
R963	1-216-041-00	METAL CHIP	470	5%	1/10W	
R964	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R965	1-216-043-00	METAL CHIP	560	5%	1/10W	
R966	1-216-043-00	METAL CHIP	560	5%	1/10W	
R967	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R968	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R969	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R970	1-216-025-00	METAL CHIP	100	5%	1/10W	
R971	1-216-025-00	METAL CHIP	100	5%	1/10W	
		(VARIABLE RESISTOR)				
RV001	1-230-869-11	RES, ADJ, METAL	4.7K			
RV002	1-230-869-11	RES, ADJ, METAL	4.7K			
RV501	1-230-519-11	RES, ADJ, METAL	470			
RV502	1-230-519-11	RES, ADJ, METAL	470			
RV503	1-230-867-11	RES, ADJ, METAL	1K			
RV504	1-230-867-11	RES, ADJ, METAL	1K			
RV701	1-230-873-11	RES, ADJ, METAL	47K			
RV802	1-230-869-11	RES, ADJ, METAL	4.7K			
RV803	1-230-868-11	RES, ADJ, METAL	2.2K			
RV804	1-230-866-11	RES, ADJ, METAL	470			
RV805	1-230-866-11	RES, ADJ, METAL	470			
RV806	1-230-869-11	RES, ADJ, METAL	4.7K			

Ref. No.	Part No.	Description				Remark
		(CRYSTAL)				
X101	1-567-733-11	VIBRATOR, CRYSTAL (17.7MHz)				
X702	1-567-733-11	VIBRATOR, CRYSTAL (17.7MHz)				

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* A-7070-955-A IG-4 BOARD, COMPLETE

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(Ref. No 6000 Series)

Ref. No.	Part No.	Description				Remark
		(CAPACITOR)				
C024	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C025	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C026	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C027	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
		(CONNECTOR)				
CN006	1-566-945-11	CONNECTOR, BOARD TO BOARD 18P				
CN007	1-566-945-11	CONNECTOR, BOARD TO BOARD 18P				
		(RESISTOR)				
R044	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R099	1-216-049-00	METAL CHIP	1K	5%	1/10W	

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* A-7071-692-A JB-26 (P) BOARD, COMPLETE

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(Ref. No 10000 Series)

Ref. No.	Part No.	Description				Remark
		(CAPACITOR)				
C101	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C102	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C103	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C104	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C105	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C106	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C107	1-124-234-00	ELECT	22uF	20%	16V	
C108	1-124-234-00	ELECT	22uF	20%	16V	
C109	1-124-234-00	ELECT	22uF	20%	16V	
C110	1-124-234-00	ELECT	22uF	20%	16V	
		(DIODE)				
D101	8-719-104-34	DIODE	1S2836			
D102	8-719-104-34	DIODE	1S2836			
		(TRANSISTOR)				
Q101	8-729-202-38	TRANSISTOR	2SC3326N-A			
Q102	8-729-202-38	TRANSISTOR	2SC3326N-A			
Q103	8-729-202-38	TRANSISTOR	2SC3326N-A			
Q104	8-729-202-38	TRANSISTOR	2SC3326N-A			

(RESISTOR)

Ref. No.	Part No.	Description				Remark
R102	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R103	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R104	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R105	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R106	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R107	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R108	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R109	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R113	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R114	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R115	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R116	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R117	1-216-113-00	METAL CHIP	470K	5%	1/10W	

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Ref. No.	Part No.	Description	Remark
*	A-7070-024-A	LD-1 BOARD, COMPLETE ********************	(Ref. No 6000 Series)
*	1-613-367-11	LD-1 BOARD	

(DIODE)

Ref. No.	Part No.	Description	
D901	8-719-928-54	LED	GL-450S

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Ref. No.	Part No.	Description
*		LS-9 BOARD, COMPLETE ********************
	1-506-485-11	PIN, CONNECTOR 6P

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Ref. No.	Part No.	Description	Remark
*	A-7063-303-A	MA-163 BOARD, COMPLETE **********************	(Ref. No 9000 Series)

(CAPACITOR)

Ref. No.	Part No.	Description				Remark
C004	1-124-234-00	ELECT	22uF	20%	16V	
C010	1-124-584-00	ELECT	100uF	20%	10V	
C011	1-124-584-00	ELECT	100uF	20%	10V	
C012	1-124-584-00	ELECT	100uF	20%	10V	
C013	1-124-584-00	ELECT	100uF	20%	10V	
C014	1-124-234-00	ELECT	22uF	20%	16V	
C015	1-124-234-00	ELECT	22uF	20%	16V	
C017	1-124-234-00	ELECT	22uF	20%	16V	
C021	1-124-584-00	ELECT	100uF	20%	10V	
C022	1-124-234-00	ELECT	22uF	20%	16V	
C023	1-126-162-11	ELECT	3.3uF	20%	50V	
C054	1-124-234-00	ELECT	22uF	20%	16V	
C057	1-124-234-00	ELECT	22uF	20%	16V	
C060	1-124-584-00	ELECT	100uF	20%	10V	
C061	1-124-584-00	ELECT	100uF	20%	10V	
C062	1-124-584-00	ELECT	100uF	20%	10V	
C063	1-124-584-00	ELECT	100uF	20%	10V	
C064	1-124-234-00	ELECT	22uF	20%	16V	
C065	1-124-234-00	ELECT	22uF	20%	16V	
C067	1-124-234-00	ELECT	22uF	20%	16V	
C081	1-124-584-00	ELECT	100uF	20%	10V	
C082	1-124-234-00	ELECT	22uF	20%	16V	
C083	1-126-162-11	ELECT	3.3uF	20%	50V	
C159	1-124-584-00	ELECT	100uF	20%	10V	
C160	1-124-584-00	ELECT	100uF	20%	10V	
C165	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C166	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C167	1-126-162-11	ELECT	3.3uF	20%	50V	
C168	1-126-157-11	ELECT	10uF	20%	16V	
C169	1-124-584-00	ELECT	100uF	20%	10V	
C170	1-124-584-00	ELECT	100uF	20%	10V	
C171	1-124-584-00	ELECT	100uF	20%	10V	
C172	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C173	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C501	1-124-234-00	ELECT	22uF	20%	16V	
C521	1-124-234-00	ELECT	22uF	20%	16V	
C522	1-124-234-00	ELECT	22uF	20%	16V	
C531	1-124-234-00	ELECT	22uF	20%	16V	
C532	1-124-234-00	ELECT	22uF	20%	16V	
C551	1-124-234-00	ELECT	22uF	20%	16V	
C806	1-126-157-11	ELECT	10uF	20%	16V	
C807	1-126-157-11	ELECT	10uF	20%	16V	
C809	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C810	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C811	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C813	1-124-589-11	ELECT	47uF	20%	16V	
C814	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C815	1-126-163-11	ELECT	4.7uF	20%	50V	
C816	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C817	1-126-163-11	ELECT	4.7uF	20%	50V	
C818	1-126-163-11	ELECT	4.7uF	20%	50V	
C819	1-126-163-11	ELECT	4.7uF	20%	50V	
C820	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C821	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C822	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C823	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C824	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C825	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C826	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C827	1-163-031-11	CERAMIC CHIP	0.01uF		50V	

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Ref. No.	Part No.	Description				Remark
C828	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C829	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C830	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C831	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C832	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C833	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C834	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C835	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C836	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C837	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C838	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C839	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C840	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C841	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C842	1-136-720-11	FILM CHIP	0.15uF	5%	25V	
C843	1-136-718-11	FILM, CHIP	0.1uF	5%	25V	
C844	1-136-720-11	FILM CHIP	0.15uF	5%	25V	
C845	1-136-718-11	FILM, CHIP	0.1uF	5%	25V	
C846	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C847	1-124-584-00	ELECT	100uF	20%	10V	
C848	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C849	1-136-718-11	FILM, CHIP	0.1uF	5%	25V	
C850	1-136-720-11	FILM CHIP	0.15uF	5%	25V	
C851	1-124-589-11	ELECT	47uF	20%	16V	
C853	1-124-589-11	ELECT	47uF	20%	16V	
C854	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C855	1-124-584-00	ELECT	100uF	20%	10V	
C856	1-124-584-00	ELECT	100uF	20%	10V	

〈 CONNECTOR 〉

Ref. No.	Part No.	Description		Remark
CN002	1-506-468-11	PIN, CONNECTOR	3P	
CN005	1-506-471-11	PIN, CONNECTOR	6P	
CN006	1-506-475-11	PIN, CONNECTOR	10P	
CN007	1-506-477-11	PIN, CONNECTOR	12P	
* CN008	1-560-900-00	PIN, CONNECTOR	12P	
CN011	1-564-006-81	PIN, CONNECTOR	7P	
CN012	1-506-474-11	PIN, CONNECTOR	9P	
CN013	1-506-473-11	PIN, CONNECTOR	8P	
CN014	1-506-472-11	PIN, CONNECTOR	7P	
CN015	1-506-492-11	PIN, CONNECTOR	13P	
CN016	1-506-468-11	PIN, CONNECTOR	3P	
* CN801	1-566-208-11	PIN, CONNECTOR (PC BOARD)	15P	
CN802	1-506-492-11	PIN, CONNECTOR	13P	
CN804	1-506-492-11	PIN, CONNECTOR	13P	
CN805	1-506-489-11	PIN, CONNECTOR	10P	
* CN806	1-566-206-11	PIN, CONNECTOR (PC BOARD)	13P	
* CN807	1-566-204-11	PIN, CONNECTOR (PC BOARD)	11P	

〈 DIODE 〉

Ref. No.	Part No.	Description		Remark
D001	8-719-104-34	DIODE	1S2836	
D002	8-719-104-34	DIODE	1S2836	
D003	8-719-104-34	DIODE	1S2836	
D010	8-719-800-76	DIODE	1SS226	
D051	8-719-104-34	DIODE	1S2836	
D052	8-719-104-34	DIODE	1S2836	
D053	8-719-104-34	DIODE	1S2836	
D060	8-719-400-18	DIODE	MA152WK	
D162	8-719-104-34	DIODE	1S2836	
D163	8-719-104-34	DIODE	1S2836	
D164	8-719-104-34	DIODE	1S2836	
D165	8-719-400-18	DIODE	MA152WK	
D166	8-719-400-18	DIODE	MA152WK	
D167	8-719-400-18	DIODE	MA152WK	
D168	8-719-400-18	DIODE	MA152WK	
D169	8-719-104-34	DIODE	1S2836	
D170	8-719-400-18	DIODE	MA152WK	
D171	8-719-800-76	DIODE	1SS226	
D201	8-719-400-18	DIODE	MA152WK	
D202	8-719-104-34	DIODE	1S2836	
D501	8-719-104-34	DIODE	1S2836	
D502	8-719-104-34	DIODE	1S2836	
D503	8-719-104-34	DIODE	1S2836	
D801	8-719-400-18	DIODE	MA152WK	

〈 IC 〉

Ref. No.	Part No.	Description		Remark
IC004	8-759-981-92	IC	RC4558M	
IC005	8-759-932-64	IC	BU4052BF	
IC006	8-759-981-92	IC	RC4558M	
IC051	8-759-981-92	IC	RC4558M	
IC054	8-759-981-92	IC	RC4558M	
IC055	8-759-932-64	IC	BU4052BF	
IC056	8-759-981-92	IC	RC4558M	
IC165	8-759-200-67	IC	TC4001BF	
IC166	8-759-233-64	IC	TC74HCU04AF	
IC501	8-759-603-27	IC	M5201FP	
IC531	8-759-603-27	IC	M5201FP	
IC551	8-759-603-27	IC	M5201FP	
IC801	8-759-149-16	IC	uPD78213GC-AB8	
IC804	8-759-926-05	IC	SN74HC125ANS	
IC805	8-759-926-05	IC	SN74HC125ANS	
IC806	8-752-326-33	IC	CXK1011M	
IC807	8-759-926-67	IC	SN74HC374ANS	
IC808	8-752-332-28	IC	CXK5864BM-12L-T6	
IC809	8-759-084-55	IC	MBM27C512P-GDX978	
IC810	8-759-937-56	IC	S-8054ALB-LM-S	
IC811	8-759-926-48	IC	SN74HC244ANS	
IC812	8-759-926-67	IC	SN74HC374ANS	
IC813	8-759-926-67	IC	SN74HC374ANS	
IC814	8-759-925-85	IC	SN74HC32ANS	
IC815	8-759-926-12	IC	SN74HC139ANS	

Ref. No.	Part No.	Description	Remark
IC816	8-759-925-74	IC SN74HC04ANS	
IC817	8-759-925-85	IC SN74HC32ANS	
IC818	8-759-009-51	IC MC14538BF	
IC819	8-759-009-51	IC MC14538BF	
IC820	8-759-925-90	IC SN74HC74ANS	
IC821	8-759-937-56	IC S-8054ALB-LM-S	
IC822	8-759-009-51	IC MC14538BF	
IC823	8-759-300-71	IC HD14053BFP	
IC824	8-759-925-79	IC SN74HC11ANS	
ICS809	1-540-250-11	IC SOCKET, SIL	

〈 COIL 〉

Ref. No.	Part No.	Description	Remark
L801	1-407-169-XX	INDUCTOR 100uH	
L802	1-407-169-XX	INDUCTOR 100uH	
L803	1-407-169-XX	INDUCTOR 100uH	
L804	1-408-978-21	INDUCTOR 47uH	

〈 LINK, IC 〉

Ref. No.	Part No.	Description	Remark
⚠PS001	1-532-637-00	LINK, IC ICP-N25 (1.0A)	
⚠PS002	1-532-675-00	LINK, IC ICP-N38 (1.5A)	
⚠PS003	1-532-637-00	LINK, IC ICP-N25 (1.0A)	
⚠PS004	1-532-679-00	LINK, IC ICP-N15 (0.6A)	
⚠PS005	1-532-685-00	LINK, IC ICP-N20 (0.8A)	
⚠PS006	1-532-675-00	LINK, IC ICP-N38 (1.5A)	
⚠PS007	1-532-685-00	LINK, IC ICP-N20 (0.8A)	
⚠PS008	1-532-637-00	LINK, IC ICP-N25 (1.0A)	
⚠PS010	1-532-685-00	LINK, IC ICP-N20 (0.8A)	
⚠PS011	1-532-637-00	LINK, IC ICP-N25 (1.0A)	
⚠PS012	1-532-685-00	LINK, IC ICP-N20 (0.8A)	
⚠PS013	1-532-637-00	LINK, IC ICP-N25 (1.0A)	
⚠PS014	1-532-675-00	LINK, IC ICP-N38 (1.5A)	

〈 TRANSISTOR 〉

Ref. No.	Part No.	Description	Remark
Q001	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q002	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q003	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q004	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q005	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q006	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q010	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q011	8-729-901-06	TRANSISTOR DTA144EK	
Q050	8-729-901-06	TRANSISTOR DTA144EK	
Q051	8-729-901-06	TRANSISTOR DTA144EK	
Q052	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q053	8-729-901-06	TRANSISTOR DTA144EK	
Q054	8-729-901-06	TRANSISTOR DTA144EK	
Q055	8-729-901-06	TRANSISTOR DTA144EK	
Q056	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q059	8-729-901-06	TRANSISTOR DTA144EK	
Q060	8-729-101-07	TRANSISTOR 2SB798-DL	
Q061	8-729-901-01	TRANSISTOR DTC144EK	

Ref. No.	Part No.	Description	Remark
Q062	8-729-901-01	TRANSISTOR DTC144EK	
Q063	8-729-901-06	TRANSISTOR DTA144EK	
Q064	8-729-901-01	TRANSISTOR DTC144EK	
Q065	8-729-901-01	TRANSISTOR DTC144EK	
Q066	8-729-901-01	TRANSISTOR DTC144EK	
Q067	8-729-901-01	TRANSISTOR DTC144EK	
Q068	8-729-901-01	TRANSISTOR DTC144EK	
Q164	8-729-901-06	TRANSISTOR DTA144EK	
Q165	8-729-901-06	TRANSISTOR DTA144EK	
Q166	8-729-901-01	TRANSISTOR DTC144EK	
Q167	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q168	8-729-901-06	TRANSISTOR DTA144EK	
Q169	8-729-901-06	TRANSISTOR DTA144EK	
Q170	8-729-901-06	TRANSISTOR DTA144EK	
Q171	8-729-901-06	TRANSISTOR DTA144EK	
Q172	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q174	8-729-901-06	TRANSISTOR DTA144EK	
Q175	8-729-901-06	TRANSISTOR DTA144EK	
Q176	8-729-901-06	TRANSISTOR DTA144EK	
Q177	8-729-901-06	TRANSISTOR DTA144EK	
Q178	8-729-901-01	TRANSISTOR DTC144EK	
Q179	8-729-901-06	TRANSISTOR DTA144EK	
Q180	8-729-901-01	TRANSISTOR DTC144EK	
Q181	8-729-901-01	TRANSISTOR DTC144EK	
Q182	8-729-216-22	TRANSISTOR 2SA1162-G	
Q183	8-729-901-01	TRANSISTOR DTC144EK	
Q184	8-729-901-01	TRANSISTOR DTC144EK	
Q185	8-729-901-01	TRANSISTOR DTC144EK	
Q186	8-729-901-06	TRANSISTOR DTA144EK	
Q187	8-729-901-01	TRANSISTOR DTC144EK	
Q188	8-729-901-06	TRANSISTOR DTA144EK	
Q189	8-729-901-06	TRANSISTOR DTA144EK	
Q190	8-729-901-06	TRANSISTOR DTA144EK	
Q191	8-729-901-04	TRANSISTOR DTA114EK	
Q201	8-729-216-22	TRANSISTOR 2SA1162-G	
Q202	8-729-901-05	TRANSISTOR DTA124EK	
Q203	8-729-901-05	TRANSISTOR DTA124EK	
Q204	8-729-900-53	TRANSISTOR DTC114EK	
Q205	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q501	8-729-901-01	TRANSISTOR DTC144EK	
Q502	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q503	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q521	8-729-901-01	TRANSISTOR DTC144EK	
Q522	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q523	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q531	8-729-901-01	TRANSISTOR DTC144EK	
Q532	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q533	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q551	8-729-901-01	TRANSISTOR DTC144EK	
Q552	8-729-202-38	TRANSISTOR 2SC3326N-A	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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Ref. No.	Part No.	Description				Remark
Q553	8-729-202-38	TRANSISTOR	2SC3326N-A			
Q801	8-729-901-01	TRANSISTOR	DTC144EK			
		(RESISTOR)				
R001	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R011	1-216-025-00	METAL CHIP	100	5%	1/10W	
R012	1-216-025-00	METAL CHIP	100	5%	1/10W	
R019	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R020	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R021	1-216-086-00	METAL GLAZE	36K	5%	1/10W	
R022	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R023	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R024	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R026	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R027	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R028	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R030	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R031	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R032	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R033	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R034	1-216-094-00	METAL GLAZE	75K	5%	1/10W	
R035	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R036	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R043	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R044	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R045	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R046	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R051	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R060	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R061	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R062	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R063	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R064	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R065	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R066	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R067	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R068	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R070	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R071	1-216-086-00	METAL GLAZE	36K	5%	1/10W	
R072	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R073	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R074	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R076	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R077	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R078	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R079	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R080	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R081	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R082	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R083	1-216-049-00	METAL CHIP	1K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R084	1-216-094-00	METAL GLAZE	75K	5%	1/10W	
R085	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R086	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R093	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R094	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R095	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R110	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R111	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R118	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R119	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R120	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R121	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R122	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R126	1-216-295-00	METAL CHIP	0	5%	1/10W	
R148	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R149	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R150	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R151	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R152	1-216-295-00	METAL CHIP	0	5%	1/10W	
R153	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R156	1-216-295-00	METAL CHIP	0	5%	1/10W	
R165	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R166	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R167	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R168	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R169	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R170	1-216-025-00	METAL CHIP	100	5%	1/10W	
R171	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R172	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R173	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R174	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R175	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R176	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R177	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R178	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R179	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R181	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R182	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R183	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R184	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R185	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R186	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R187	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R189	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R190	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R191	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R192	1-216-073-00	METAL CHIP	10K	5%	1/10W	

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Ref. No.	Part No.	Description				Remark
R201	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R202	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R203	1-216-041-00	METAL CHIP	470	5%	1/10W	
R204	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R205	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R206	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R501	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R503	1-216-295-00	METAL CHIP	0	5%	1/10W	
R504	1-216-295-00	METAL CHIP	0	5%	1/10W	
R505	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R507	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R508	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R509	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R510	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R511	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R512	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R513	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R518	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R520	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R521	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R522	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R523	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R525	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R526	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R527	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R528	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R529	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R531	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R532	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R533	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R534	1-216-295-00	METAL CHIP	0	5%	1/10W	
R535	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R536	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R537	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R538	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R539	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R540	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R541	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R542	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R543	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R551	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R553	1-216-295-00	METAL CHIP	0	5%	1/10W	
R554	1-216-295-00	METAL CHIP	0	5%	1/10W	
R555	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R557	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R558	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R559	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R560	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R561	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R562	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R801	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R802	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R803	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R804	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R805	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R806	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R807	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R814	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R815	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R816	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R817	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R818	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R819	1-216-025-00	METAL CHIP	100	5%	1/10W	
R820	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R821	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R822	1-216-025-00	METAL CHIP	100	5%	1/10W	
R823	1-216-025-00	METAL CHIP	100	5%	1/10W	
R824	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R825	1-216-025-00	METAL CHIP	100	5%	1/10W	
R826	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R827	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R828	1-216-025-00	METAL CHIP	100	5%	1/10W	
R829	1-216-025-00	METAL CHIP	100	5%	1/10W	
R830	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R831	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R832	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R833	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R834	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R835	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R836	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R837	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R838	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R839	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R840	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R842	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R843	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R847	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R848	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R849	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R850	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R851	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R852	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R853	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R854	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R855	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R856	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R857	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R858	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R859	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R860	1-216-025-00	METAL CHIP	100	5%	1/10W	

MA-163 MB-19 (P)

Ref. No.	Part No.	Description				Remark
R861	1-216-025-00	METAL CHIP	100	5%	1/10W	
R862	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R863	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R864	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R865	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R866	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R867	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R868	1-216-025-00	METAL CHIP	100	5%	1/10W	
R869	1-216-025-00	METAL CHIP	100	5%	1/10W	
R870	1-216-025-00	METAL CHIP	100	5%	1/10W	
R871	1-216-025-00	METAL CHIP	100	5%	1/10W	
R872	1-216-025-00	METAL CHIP	100	5%	1/10W	
R873	1-216-025-00	METAL CHIP	100	5%	1/10W	
R874	1-216-025-00	METAL CHIP	100	5%	1/10W	
R875	1-216-025-00	METAL CHIP	100	5%	1/10W	
R876	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R877	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R879	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R880	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R881	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R883	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R885	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R886	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R887	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R888	1-216-025-00	METAL CHIP	100	5%	1/10W	
R889	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R890	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R891	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R892	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R893	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R894	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R895	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R896	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R897	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R898	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R899	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R900	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R901	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R902	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R903	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R904	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R905	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R906	1-216-295-00	METAL CHIP	0	5%	1/10W	
R907	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R922	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R923	1-216-295-00	METAL CHIP	0	5%	1/10W	
R925	1-216-295-00	METAL CHIP	0	5%	1/10W	
R926	1-216-049-00	METAL CHIP	1K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
		(VARIABLE RESISTOR)				
RV801	1-238-092-11	RES, ADJ, CERMET	47K			
RV802	1-238-092-11	RES, ADJ, CERMET	47K			
RV803	1-238-092-11	RES, ADJ, CERMET	47K			
		(CRYSTAL)				
X801	1-567-906-11	VIBRATOR, CRYSTAL (11.0592MHz)				

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*	A-7063-298-A	MB-19 (P) BOARD, COMPLETE ************************* (Ref. No 7000 Series)				
*	4-911-047-01	VIBRATION CONTROL (D)				
		(CAPACITOR)				
C601	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C602	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C603	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C604	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C605	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C606	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C607	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C608	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C609	1-124-234-00	ELECT	22uF	20%	16V	
C610	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C641	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C651	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C652	1-124-234-00	ELECT	22uF	20%	16V	
C653	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C661	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V	
C662	1-124-234-00	ELECT	22uF	20%	16V	
C663	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C671	1-124-584-00	ELECT	100uF	20%	10V	
C672	1-135-091-00	TANTALUM CHIP	1uF	20%	16V	
C673	1-124-584-00	ELECT	100uF	20%	10V	
C674	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C675	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	
C676	1-124-584-00	ELECT	100uF	20%	10V	
C677	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C678	1-124-584-00	ELECT	100uF	20%	10V	
C679	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C680	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V	
C681	1-124-584-00	ELECT	100uF	20%	10V	
C682	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V	
C683	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
		(CONNECTOR)				
CN601	1-566-943-11	CONNECTOR, BOARD TO BOARD 18P				
CN602	1-566-944-11	CONNECTOR, BOARD TO BOARD 22P				

Ref. No.	Part No.	Description	Remark
CN603	1-506-467-11	PIN, CONNECTOR 2P	
CN605	1-506-473-11	PIN, CONNECTOR 8P	
CN606	1-506-470-11	PIN, CONNECTOR 5P	
CN923	1-506-474-11	PIN, CONNECTOR 9P	
CN924	1-506-473-11	PIN, CONNECTOR 8P	
		(DIODE)	
D601	8-719-104-34	DIODE 1S2836	
D602	8-719-104-34	DIODE 1S2836	
D603	8-719-104-34	DIODE 1S2836	
D604	8-719-400-18	DIODE MA152WK	
D641	8-719-800-76	DIODE 1SS226	
D642	8-719-800-76	DIODE 1SS226	
		(IC)	
IC601	8-759-066-42	IC uPD75106G-595-1B	
IC603	8-759-300-71	IC HD14053BFP	
IC651	8-759-603-27	IC M5201FP	
IC661	8-759-603-27	IC M5201FP	
IC671	8-741-150-50	IC SBX1505-01	
		(COIL)	
L601	1-408-970-21	INDUCTOR 10uH	
L602	1-408-970-21	INDUCTOR 10uH	
L603	1-408-970-21	INDUCTOR 10uH	
L604	1-408-948-00	INDUCTOR 220uH	
L605	1-408-948-00	INDUCTOR 220uH	
L641	1-410-393-11	INDUCTOR CHIP 100uH	
L671	1-408-948-00	INDUCTOR 220uH	
		(TRANSISTOR)	
Q601	8-729-901-06	TRANSISTOR DTA144EK	
Q602	8-729-901-01	TRANSISTOR DTC144EK	
Q603	8-729-901-01	TRANSISTOR DTC144EK	
Q604	8-729-901-01	TRANSISTOR DTC144EK	
Q605	8-729-901-06	TRANSISTOR DTA144EK	
Q606	8-729-901-06	TRANSISTOR DTA144EK	
Q607	8-729-901-01	TRANSISTOR DTC144EK	
Q608	8-729-901-01	TRANSISTOR DTC144EK	
Q609	8-729-901-06	TRANSISTOR DTA144EK	
Q671	8-729-100-66	TRANSISTOR 2SC1623-L6	
		(RESISTOR)	
R601	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R602	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R603	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R604	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R611	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R612	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R613	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R614	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R615	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R616	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R617	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R618	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R619	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R625	1-216-041-00	METAL CHIP 470 5% 1/10W	
R626	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R627	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R628	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R629	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R630	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R631	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R632	1-216-041-00	METAL CHIP 470 5% 1/10W	
R633	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R634	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R635	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R636	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R637	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R638	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R639	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R641	1-216-072-00	METAL CHIP 9.1K 5% 1/10W	
R642	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R643	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R644	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R645	1-216-072-00	METAL CHIP 9.1K 5% 1/10W	
R646	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R647	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R648	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R649	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R651	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R652	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R653	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R654	1-216-047-00	METAL CHIP 820 5% 1/10W	
R655	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R656	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R657	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R661	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R662	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R663	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R664	1-216-047-00	METAL CHIP 820 5% 1/10W	
R665	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R666	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R667	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R671	1-216-295-00	METAL CHIP 0 5% 1/10W	
R672	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R673	1-216-052-00	METAL CHIP 1.3K 5% 1/10W	
R674	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R675	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R676	1-216-045-00	METAL CHIP 680 5% 1/10W	

MB-19 (P) MB-50 (P) MD-23 (P)

Ref. No.	Part No.	Description	Remark
R677	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R678	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R679	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R680	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R681	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R682	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R683	1-216-089-00	METAL CHIP 47K 5% 1/10W	
		(SWITCH)	
S641	1-554-371-51	SWITCH, TACT (EJECT)	
S642	1-554-371-51	SWITCH, TACT (PB)	
S643	1-554-371-51	SWITCH, TACT (PAUSE)	
S644	1-554-371-51	SWITCH, TACT (REW)	
S645	1-554-371-51	SWITCH, TACT (STOP)	
S646	1-554-371-51	SWITCH, TACT (REC)	
S647	1-554-371-51	SWITCH, TACT (FF)	
S648	1-570-909-11	SWITCH, TACTIL (REFLOW TYPE) (POWER)	
S649	1-554-371-51	SWITCH, TACT (-X1)	
		(FILTER)	
T603	1-235-398-11	BPF	
T651	1-235-900-11	FILTER, LOW PASS	
T661	1-235-900-11	FILTER, LOW PASS	
		(CRYSTAL)	
X601	1-567-121-00	VIBRATOR, CRYSTAL (4.19MHz)	

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* A-7063-315-A MB-50 (P) BOARD, COMPLETE
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(Ref. No 8000 Series)

Ref. No.	Part No.	Description	Remark
	7-622-207-05	N 2.6, TYPE 2	
	7-628-254-20	SCREW +PS 2.6X8	
		(CAPACITOR)	
C601	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C602	1-124-584-00	ELECT 100uF 20% 10V	
C603	1-124-584-00	ELECT 100uF 20% 10V	
C604	1-124-584-00	ELECT 100uF 20% 10V	
C606	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
		(CONNECTOR)	
CN601	1-506-475-11	PIN, CONNECTOR 10P	
* CN602	1-563-336-11	HOUSING, 64P	
CN603	1-506-473-11	PIN, CONNECTOR 8P	
CN604	1-506-475-11	PIN, CONNECTOR 10P	
		(COIL)	
L601	1-410-667-31	INDUCTOR 22uH	
L603	1-408-418-00	INDUCTOR 56uH	

Ref. No.	Part No.	Description	Remark
		(LINK, IC)	
⚠PS601	1-532-637-00	LINK, IC ICP-N25 (1.0A)	
⚠PS602	1-532-685-00	LINK, IC ICP-N20 (0.8A)	

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* A-7062-168-A MD-23 (P) BOARD, COMPLETE
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(Ref. No 1000 Series)

Ref. No.	Part No.	Description	Remark
	1-625-649-11	FP-84 FLEXIBLE BOARD	
	1-625-650-11	FP-122 FLEXIBLE BOARD	
		(CAPACITOR)	
C801	1-124-465-00	ELECT 0.47uF 20% 50V	
C802	1-124-464-11	ELECT 0.22uF 20% 50V	
C803	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C804	1-126-160-11	ELECT 1uF 20% 50V	
C805	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C806	1-126-151-11	ELECT, NONPOLAR R 4.7uF 20% 16V	
C808	1-126-162-11	ELECT 3.3uF 20% 50V	
C809	1-124-584-00	ELECT 100uF 20% 10V	
C810	1-126-096-11	ELECT 10uF 20% 35V	
C811	1-126-096-11	ELECT 10uF 20% 35V	
C812	1-126-096-11	ELECT 10uF 20% 35V	
C813	1-126-160-11	ELECT 1uF 20% 50V	
C814	1-126-160-11	ELECT 1uF 20% 50V	
C815	1-126-160-11	ELECT 1uF 20% 50V	
C816	1-124-229-00	ELECT 33uF 20% 10V	
C817	1-124-229-00	ELECT 33uF 20% 10V	
C818	1-124-229-00	ELECT 33uF 20% 10V	
C819	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C820	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C821	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C822	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C823	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C824	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C825	1-126-162-11	ELECT 3.3uF 20% 50V	
C833	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C834	1-163-017-00	CERAMIC CHIP 0.0047uF 5% 50V	
C835	1-126-501-11	ELECT 0.15uF 20% 50V	
C836	1-164-157-11	CERAMIC CHIP 0.068uF 10% 25V	
C837	1-124-464-11	ELECT 0.22uF 20% 50V	
C838	1-124-589-11	ELECT 47uF 20% 16V	
C839	1-126-529-11	ELECT 0.47uF 20% 50V	
C840	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C841	1-124-589-11	ELECT 47uF 20% 16V	
C901	1-124-234-00	ELECT 22uF 20% 16V	
C902	1-124-234-00	ELECT 22uF 20% 16V	
C903	1-124-234-00	ELECT 22uF 20% 16V	
C904	1-124-234-00	ELECT 22uF 20% 16V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
C905	1-124-257-00	ELECT 2.2uF 20% 50V	
C906	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C907	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C908	1-126-096-11	ELECT 10uF 20% 35V	
C909	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C910	1-130-491-00	MYLAR 0.047uF 5% 50V	
C911	1-130-491-00	MYLAR 0.047uF 5% 50V	
C912	1-130-483-00	MYLAR 0.01uF 5% 50V	
C913	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C914	1-124-589-11	ELECT 47uF 20% 16V	
C915	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C916	1-126-530-11	ELECT 22uF 20% 10V	
C917	1-126-530-11	ELECT 22uF 20% 10V	
C918	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C919	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C950	1-164-157-11	CERAMIC CHIP 0.068uF 10% 25V	
C990	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C991	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C992	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C993	1-163-031-11	CERAMIC CHIP 0.01uF 50V	

(CONNECTOR)

Ref. No.	Part No.	Description	Remark
CN801	1-506-483-21	PIN, CONNECTOR 4P	
CN803	1-506-481-11	PIN, CONNECTOR 2P	
CN804	1-506-484-11	PIN, CONNECTOR 5P	
CN805	1-506-469-11	PIN, CONNECTOR 4P	
CN806	1-506-469-11	PIN, CONNECTOR 4P	
CN807	1-566-527-11	CONNECTOR, FPC (ZIF) 11P	
CN808	1-566-531-11	CONNECTOR, FPC (ZIF) 15P	
CN809	1-566-945-11	CONNECTOR, BOARD TO BOARD 18P	
CN810	1-566-946-11	CONNECTOR, BOARD TO BOARD 22P	
* CN811	1-566-367-11	CONNECTOR, HINGE (RECEPTACLE)	
CN812	1-566-942-11	CONNECTOR, HINGE (RECEPTACLE) 30P	
* CN814	1-566-367-11	CONNECTOR, HINGE (RECEPTACLE)	

(DIODE)

Ref. No.	Part No.	Description	Remark
D803	8-719-200-27	DIODE E10DS2	
D810	8-719-400-18	DIODE MA152WK	
D811	8-719-200-27	DIODE E10DS2	
D901	8-719-400-18	DIODE MA152WK	
D902	8-719-400-18	DIODE MA152WK	
D903	8-719-400-18	DIODE MA152WK	
D904	8-719-800-76	DIODE 1SS226	
D905	8-719-400-18	DIODE MA152WK	

(IC)

Ref. No.	Part No.	Description	Remark
IC801	8-752-037-08	IC CXA1109M	
IC802	8-759-040-65	IC LB1686M	
IC804	8-759-701-24	IC NJM3414M	
IC805	8-759-100-93	IC uPC393G2	
IC806	8-759-207-00	IC TA7733F	
IC807	8-759-107-68	IC CX20115A	
IC808	8-759-700-62	IC NJM4562D	
IC809	8-759-100-94	IC uPC358G2	
IC901	8-759-207-50	IC TA7745F	
IC902	8-759-150-05	IC uPC324G2-E1	
IC903	8-759-925-66	IC BA6303F	
IC904	8-759-008-67	IC MC14066BF	

(COIL)

Ref. No.	Part No.	Description	Remark
L990	1-408-793-21	INDUCTOR CHIP 220uH	
L991	1-408-777-00	INDUCTOR CHIP 10uH	

(LINK, IC)

Ref. No.	Part No.	Description	Remark
⚠PS801	1-532-685-00	LINK, IC ICP-N20 (0.8A)	

(TRANSISTOR)

Ref. No.	Part No.	Description	Remark
Q806	8-729-111-14	TRANSISTOR 2SA1385-Z-L	
Q807	8-729-901-06	TRANSISTOR DTA144EK	
Q809	8-729-111-95	TRANSISTOR 2SC3518-ZL	
Q810	8-729-805-25	TRANSISTOR 2SB1121-S	
Q811	8-729-805-25	TRANSISTOR 2SB1121-S	
Q812	8-729-111-14	TRANSISTOR 2SA1385-Z-L	
Q813	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q820	8-729-111-95	TRANSISTOR 2SC3518-ZL	
Q821	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q880	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q901	8-729-920-82	TRANSISTOR 2SB1188-QR	
Q902	8-729-920-82	TRANSISTOR 2SB1188-QR	
Q903	8-729-920-82	TRANSISTOR 2SB1188-QR	
Q904	8-729-901-06	TRANSISTOR DTA144EK	
Q905	8-729-901-06	TRANSISTOR DTA144EK	
Q906	8-729-901-01	TRANSISTOR DTC144EK	
Q907	8-729-901-01	TRANSISTOR DTC144EK	
Q908	8-729-901-01	TRANSISTOR DTC144EK	
Q909	8-729-901-06	TRANSISTOR DTA144EK	
Q950	8-729-903-97	TRANSISTOR FMS1FE	
Q990	8-729-100-66	TRANSISTOR 2SC1623-L6	

(RESISTOR)

Ref. No.	Part No.	Description	Remark
R801	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R802	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R803	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R804	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R805	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R806	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R807	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R810	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R811	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MD-23 (P)

Ref. No.	Part No.	Description				Remark
R818	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R819	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R820	1-216-025-00	METAL CHIP	100	5%	1/10W	
R823	1-216-025-00	METAL CHIP	100	5%	1/10W	
R824	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R826	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R830	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R831	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R832	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R833	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R834	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R835	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R840	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R841	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R842	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R843	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R844	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R845	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R846	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R847	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R848	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R849	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R852	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R860	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R861	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R864	1-216-033-00	METAL CHIP	220	5%	1/10W	
R870	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R885	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R886	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R887	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R888	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R890	1-216-681-11	METAL CHIP	18K	0.5%	1/10W	
R891	1-216-681-11	METAL CHIP	18K	0.5%	1/10W	
R892	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R893	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R894	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R895	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R896	1-216-025-00	METAL CHIP	100	5%	1/10W	
R897	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R898	1-216-025-00	METAL CHIP	100	5%	1/10W	
R899	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R900	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R901	1-216-035-00	METAL CHIP	270	5%	1/10W	
R902	1-216-035-00	METAL CHIP	270	5%	1/10W	
R903	1-216-035-00	METAL CHIP	270	5%	1/10W	
R904	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R905	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R906	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R907	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R908	1-216-027-00	METAL CHIP	120	5%	1/10W	
R909	1-216-027-00	METAL CHIP	120	5%	1/10W	
R910	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R911	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R912	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R913	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R916	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R917	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R918	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R919	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R920	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R921	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R922	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R923	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R924	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R925	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R926	1-216-111-00	METAL CHIP	390K	5%	1/10W	
R927	1-216-110-00	METAL GLAZE	360K	5%	1/10W	
R928	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R929	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R951	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R952	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R953	1-214-972-00	METAL	0.22	1%	1/4W	
R955	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R990	1-216-045-00	METAL CHIP	680	5%	1/10W	
R991	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R992	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R993	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R996	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R997	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R998	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R999	1-216-295-00	METAL CHIP	0	5%	1/10W	

(VARIABLE RESISTOR)

RV801	1-230-520-11	RES, ADJ, METAL	1K
RV802	1-230-523-11	RES, ADJ, METAL	10K
RV803	1-230-527-11	RES, ADJ, METAL	100K
RV901	1-230-529-11	RES, ADJ, METAL	470K

(THERMISTOR)

THP801	1-202-854-00	THERMISTOR, POSITIVE (10)

(CONNECTOR, CARD EDGE)

W801	1-562-880-11	CONNECTOR, CARD EDGE 15P
W901	1-562-880-11	CONNECTOR, CARD EDGE 15P

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Ref. No.	Part No.	Description	Remark
*	A-7071-693-A	MJ-42 (P) BOARD, COMPLETE ************************ (Ref. No 10000 Series)	
		(CAPACITOR)	
C215	1-135-179-21	TANTAL. CHIP 2.2uF 20% 16V	
C216	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C217	1-164-693-11	CERAMIC CHIP 0.0018uF 5% 50V	
C218	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C219	1-135-216-11	TANTALUM CHIP 10uF 20% 10V	
C220	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C228	1-135-190-21	TANTAL. CHIP 0.1uF 20% 20V	
C229	1-135-216-11	TANTALUM CHIP 10uF 20% 10V	
		(CONNECTOR)	
* CN201	1-566-201-11	PIN, CONNECTOR (PC BOARD) 8P	
		(DIODE)	
D261	8-719-108-12	DIODE RD9.1EW	
		(IC)	
IC206	8-759-700-62	IC NJM4562D	
		(JACK)	
J801	1-507-792-00	JACK	
J802	1-563-935-31	JACK, STEREO HEADPHONE	
		(RESISTOR)	
R220	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R221	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R223	1-216-295-00	METAL CHIP 0 5% 1/10W	
R224	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R225	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R226	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R227	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	

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Ref. No.	Part No.	Description	Remark
*	A-7063-302-A	MM-20 (P) BOARD, COMPLETE ************************ (Ref. No 10000 Series)	
		(CAPACITOR)	
C607	1-163-087-00	CERAMIC CHIP 4PF 50V	
C620	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C621	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C627	1-124-779-00	ELECT CHIP 10uF 20% 16V	
C630	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C634	1-124-778-00	ELECT CHIP 22uF 20% 6.3V	
C635	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C636	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C637	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C639	1-124-778-00	ELECT CHIP 22uF 20% 6.3V	
C640	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C641	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C642	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C643	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C644	1-163-139-00	CERAMIC CHIP 820PF 5% 50V	
C645	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C646	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C647	1-126-193-11	ELECT 1uF 20% 50V	
C648	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C649	1-163-017-00	CERAMIC CHIP 0.0047uF 5% 50V	
C650	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	
C651	1-126-602-11	ELECT CHIP 3.3uF 20% 50V	
C652	1-126-193-11	ELECT 1uF 20% 50V	
C653	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C654	1-163-098-00	CERAMIC CHIP 16PF 5% 50V	
C655	1-124-778-00	ELECT CHIP 22uF 20% 6.3V	
C656	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C657	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C660	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C661	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C663	1-124-499-11	ELECT, NONPOLAR R 1uF 20% 50V	
C666	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C667	1-124-499-11	ELECT, NONPOLAR R 1uF 20% 50V	
C669	1-126-193-11	ELECT 1uF 20% 50V	
C671	1-163-098-00	CERAMIC CHIP 16PF 5% 50V	
C673	1-124-778-00	ELECT CHIP 22uF 20% 6.3V	
C674	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C677	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C678	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C681	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
C685	1-124-778-00	ELECT CHIP 22uF 20% 6.3V	
C686	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C687	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C688	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C690	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C691	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C692	1-163-245-11	CERAMIC CHIP 56PF 5% 50V	
C693	1-124-779-00	ELECT CHIP 10uF 20% 16V	
C694	1-124-778-00	ELECT CHIP 22uF 20% 6.3V	
C695	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C696	1-124-779-00	ELECT CHIP 10uF 20% 16V	
C697	1-163-092-00	CERAMIC CHIP 9PF 0.25PF 50V	
C698	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C699	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C700	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C701	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C702	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	

MM-20 (P)

Ref.No.	Part No.	Description			Remark
C722	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C723	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C726	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C727	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C729	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C730	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C731	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C732	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C733	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C734	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C735	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C736	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C737	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C738	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C739	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C751	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C752	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C786	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C787	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C797	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C801	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C802	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C822	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C823	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C824	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C825	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C826	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C856	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C857	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C886	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C887	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C900	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C901	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C902	1-126-187-11	ELECT CHIP	0.1uF	20%	50V
C903	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C905	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C909	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C911	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C914	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C919	1-124-779-00	ELECT CHIP	10uF	20%	16V
C920	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C921	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C922	1-124-779-00	ELECT CHIP	10uF	20%	16V
C923	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C924	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C925	1-126-191-11	ELECT CHIP	0.47uF	20%	50V
C926	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C927	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C928	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C930	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C931	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C932	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C933	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C934	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C935	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C936	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C937	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C938	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C939	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C940	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C941	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C942	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C943	1-163-106-00	CERAMIC CHIP	36PF	5%	50V
C944	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C945	1-163-106-00	CERAMIC CHIP	36PF	5%	50V
C946	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C947	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C948	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C949	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C952	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C953	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C954	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C955	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C956	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C957	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C958	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C959	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C960	1-163-031-11	CERAMIC CHIP	0.01uF		50V
		(CONNECTOR)			
CN001	1-506-475-11	PIN, CONNECTOR	10P		
CN002	1-506-471-11	PIN, CONNECTOR	6P		
CN003	1-506-473-11	PIN, CONNECTOR	8P		
		(CAP, TRIMMER)			
CV701	1-141-347-11	CAP, VAR, TRIMMER (CHIP)			
CV703	1-141-311-11	CAP, TRIMMER	20PF		
CV704	1-141-311-11	CAP, TRIMMER	20PF		
CV901	1-141-347-11	CAP, VAR, TRIMMER (CHIP)			
		(DIODE)			
D701	8-713-300-88	DIODE	1T33C-01		
D702	8-719-949-46	DIODE	1T32		
D901	8-719-400-18	DIODE	MA152WK		
		(FILTER)			
FL601	1-421-927-21	FILTER, NOISE			
FL602	1-421-927-21	FILTER, NOISE			
FL701	1-236-564-11	FILTER, LOW PASS			
FL702	1-236-835-11	FILTER, BAND PASS			
FL703	1-415-637-11	DL (LC)			

Ref. No.	Part No.	Description	Remark
FL900	1-421-928-11	FILTER, NOISE	
FL901	1-421-928-11	FILTER, NOISE	
FL902	1-421-928-11	FILTER, NOISE	
FL903	1-421-928-11	FILTER, NOISE	
FL904	1-421-928-11	FILTER, NOISE	
FL905	1-421-928-11	FILTER, NOISE	
FL906	1-421-928-11	FILTER, NOISE	

〈 IC 〉

Ref. No.	Part No.	Description	Remark
IC701	8-759-987-17	IC CXD1226Q	
IC702	8-759-987-18	IC CXD1227Q	
IC703	8-759-046-43	IC CXD2108AQ	
IC704	8-759-072-23	IC MB87647	
IC705	8-752-340-75	IC CXK1206AM	
IC706	8-752-340-75	IC CXK1206AM	
IC707	8-752-340-75	IC CXK1206AM	
IC708	8-752-334-55	IC CXD1175AM	
IC709	8-752-334-55	IC CXD1175AM	
IC710	8-752-032-96	IC CXA1106M	
IC711	8-752-032-96	IC CXA1106M	
IC801	8-759-925-74	IC SN74HC04ANS	
IC805	8-752-340-75	IC CXK1206AM	
IC806	8-752-340-75	IC CXK1206AM	
IC807	8-752-340-75	IC CXK1206AM	
IC900	8-759-987-27	IC LM1881M	
IC902	8-759-206-28	IC TC74HC123F	
IC904	8-759-927-46	IC SN74HC00ANS	
IC905	8-759-710-62	IC NJM2246M	
IC906	8-759-710-61	IC NJM2229M	

〈 COIL 〉

Ref. No.	Part No.	Description	Remark
L601	1-410-389-31	INDUCTOR CHIP 47uH	
L602	1-410-389-31	INDUCTOR CHIP 47uH	
L604	1-408-785-21	INDUCTOR CHIP 47uH	
L605	1-408-785-21	INDUCTOR CHIP 47uH	
L606	1-408-785-21	INDUCTOR CHIP 47uH	
L607	1-410-658-31	INDUCTOR CHIP 220uH	
L608	1-410-389-31	INDUCTOR CHIP 47uH	
L611	1-410-378-11	INDUCTOR CHIP 5.6uH	
L612	1-408-785-21	INDUCTOR CHIP 47uH	
L614	1-408-785-21	INDUCTOR CHIP 47uH	
L615	1-408-785-21	INDUCTOR CHIP 47uH	
L616	1-410-389-31	INDUCTOR CHIP 47uH	
L617	1-410-656-11	INDUCTOR CHIP 150uH	
L623	1-410-389-31	INDUCTOR CHIP 47uH	
L624	1-410-389-31	INDUCTOR CHIP 47uH	
L701	1-410-371-41	INDUCTOR CHIP 1.5uH	
L702	1-408-785-21	INDUCTOR CHIP 47uH	
L801	1-410-389-31	INDUCTOR CHIP 47uH	
L823	1-410-389-31	INDUCTOR CHIP 47uH	
L824	1-410-389-31	INDUCTOR CHIP 47uH	
L825	1-410-389-31	INDUCTOR CHIP 47uH	
L900	1-408-785-21	INDUCTOR CHIP 47uH	
L901	1-410-378-11	INDUCTOR CHIP 5.6uH	
L902	1-410-378-11	INDUCTOR CHIP 5.6uH	

〈 TRANSISTOR 〉

Ref. No.	Part No.	Description	Remark
Q603	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q604	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q605	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q606	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q607	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q608	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q609	8-729-216-22	TRANSISTOR 2SA1162-G	
Q610	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q611	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q612	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q613	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q614	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q615	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q616	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q617	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q618	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q619	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q628	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q631	8-729-102-08	TRANSISTOR 2SC2223-F14	
Q637	8-729-122-63	TRANSISTOR 2SA1226-E4	
Q900	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q901	8-729-216-22	TRANSISTOR 2SA1162-G	
Q903	8-729-120-28	TRANSISTOR 2SC1623-L5L6	

〈 RESISTOR 〉

Ref. No.	Part No.	Description	Remark
R500	1-216-295-00	METAL CHIP 0 5% 1/10W	
R501	1-216-295-00	METAL CHIP 0 5% 1/10W	
R502	1-216-295-00	METAL CHIP 0 5% 1/10W	
R503	1-216-295-00	METAL CHIP 0 5% 1/10W	
R504	1-216-295-00	METAL CHIP 0 5% 1/10W	
R505	1-216-295-00	METAL CHIP 0 5% 1/10W	
R506	1-216-295-00	METAL CHIP 0 5% 1/10W	
R507	1-216-295-00	METAL CHIP 0 5% 1/10W	
R508	1-216-295-00	METAL CHIP 0 5% 1/10W	
R509	1-216-295-00	METAL CHIP 0 5% 1/10W	
R510	1-216-295-00	METAL CHIP 0 5% 1/10W	
R511	1-216-295-00	METAL CHIP 0 5% 1/10W	
R512	1-216-295-00	METAL CHIP 0 5% 1/10W	
R513	1-216-295-00	METAL CHIP 0 5% 1/10W	
R514	1-216-295-00	METAL CHIP 0 5% 1/10W	
R515	1-216-295-00	METAL CHIP 0 5% 1/10W	
R516	1-216-295-00	METAL CHIP 0 5% 1/10W	
R517	1-216-295-00	METAL CHIP 0 5% 1/10W	
R518	1-216-295-00	METAL CHIP 0 5% 1/10W	
R519	1-216-295-00	METAL CHIP 0 5% 1/10W	

MM-20 (P)

Ref. No.	Part No.	Description				Remark
R520	1-216-295-00	METAL CHIP	0	5%	1/10W	
R521	1-216-295-00	METAL CHIP	0	5%	1/10W	
R522	1-216-295-00	METAL CHIP	0	5%	1/10W	
R523	1-216-295-00	METAL CHIP	0	5%	1/10W	
R524	1-216-295-00	METAL CHIP	0	5%	1/10W	
R525	1-216-295-00	METAL CHIP	0	5%	1/10W	
R526	1-216-295-00	METAL CHIP	0	5%	1/10W	
R527	1-216-295-00	METAL CHIP	0	5%	1/10W	
R528	1-216-295-00	METAL CHIP	0	5%	1/10W	
R530	1-216-295-00	METAL CHIP	0	5%	1/10W	
R531	1-216-295-00	METAL CHIP	0	5%	1/10W	
R532	1-216-295-00	METAL CHIP	0	5%	1/10W	
R533	1-216-295-00	METAL CHIP	0	5%	1/10W	
R534	1-216-295-00	METAL CHIP	0	5%	1/10W	
R535	1-216-295-00	METAL CHIP	0	5%	1/10W	
R536	1-216-295-00	METAL CHIP	0	5%	1/10W	
R537	1-216-295-00	METAL CHIP	0	5%	1/10W	
R538	1-216-295-00	METAL CHIP	0	5%	1/10W	
R543	1-216-295-00	METAL CHIP	0	5%	1/10W	
R544	1-216-295-00	METAL CHIP	0	5%	1/10W	
R545	1-216-295-00	METAL CHIP	0	5%	1/10W	
R546	1-216-295-00	METAL CHIP	0	5%	1/10W	
R547	1-216-295-00	METAL CHIP	0	5%	1/10W	
R548	1-216-295-00	METAL CHIP	0	5%	1/10W	
R549	1-216-295-00	METAL CHIP	0	5%	1/10W	
R550	1-216-295-00	METAL CHIP	0	5%	1/10W	
R551	1-216-295-00	METAL CHIP	0	5%	1/10W	
R552	1-216-295-00	METAL CHIP	0	5%	1/10W	
R553	1-216-295-00	METAL CHIP	0	5%	1/10W	
R554	1-216-295-00	METAL CHIP	0	5%	1/10W	
R555	1-216-295-00	METAL CHIP	0	5%	1/10W	
R556	1-216-295-00	METAL CHIP	0	5%	1/10W	
R557	1-216-295-00	METAL CHIP	0	5%	1/10W	
R558	1-216-295-00	METAL CHIP	0	5%	1/10W	
R559	1-216-295-00	METAL CHIP	0	5%	1/10W	
R560	1-216-295-00	METAL CHIP	0	5%	1/10W	
R561	1-216-295-00	METAL CHIP	0	5%	1/10W	
R562	1-216-295-00	METAL CHIP	0	5%	1/10W	
R563	1-216-295-00	METAL CHIP	0	5%	1/10W	
R564	1-216-295-00	METAL CHIP	0	5%	1/10W	
R565	1-216-295-00	METAL CHIP	0	5%	1/10W	
R566	1-216-295-00	METAL CHIP	0	5%	1/10W	
R583	1-216-295-00	METAL CHIP	0	5%	1/10W	
R584	1-216-295-00	METAL CHIP	0	5%	1/10W	
R585	1-216-295-00	METAL CHIP	0	5%	1/10W	
R586	1-216-295-00	METAL CHIP	0	5%	1/10W	
R587	1-216-295-00	METAL CHIP	0	5%	1/10W	
R588	1-216-295-00	METAL CHIP	0	5%	1/10W	
R589	1-216-295-00	METAL CHIP	0	5%	1/10W	
R590	1-216-295-00	METAL CHIP	0	5%	1/10W	
R591	1-216-295-00	METAL CHIP	0	5%	1/10W	
R592	1-216-295-00	METAL CHIP	0	5%	1/10W	
R593	1-216-295-00	METAL CHIP	0	5%	1/10W	
R594	1-216-295-00	METAL CHIP	0	5%	1/10W	
R595	1-216-295-00	METAL CHIP	0	5%	1/10W	
R596	1-216-295-00	METAL CHIP	0	5%	1/10W	
R597	1-216-295-00	METAL CHIP	0	5%	1/10W	
R598	1-216-295-00	METAL CHIP	0	5%	1/10W	
R599	1-216-295-00	METAL CHIP	0	5%	1/10W	
R628	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R629	1-216-041-00	METAL CHIP	470	5%	1/10W	
R630	1-216-037-00	METAL CHIP	330	5%	1/10W	
R631	1-216-047-00	METAL CHIP	820	5%	1/10W	
R632	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R633	1-216-048-00	METAL CHIP	910	5%	1/10W	
R636	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R638	1-216-025-00	METAL CHIP	100	5%	1/10W	
R639	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R641	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R642	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W	
R643	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R644	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R645	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R646	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R647	1-216-025-00	METAL CHIP	100	5%	1/10W	
R648	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R649	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R650	1-216-041-00	METAL CHIP	470	5%	1/10W	
R651	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R652	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R653	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R654	1-216-019-00	METAL CHIP	56	5%	1/10W	
R655	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R656	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R657	1-216-021-00	METAL CHIP	68	5%	1/10W	
R658	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R659	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R660	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R661	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R662	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R663	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R664	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R665	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R666	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R672	1-216-295-00	METAL CHIP	0	5%	1/10W	
R678	1-216-295-00	METAL CHIP	0	5%	1/10W	
R679	1-216-119-00	METAL CHIP	820K	5%	1/10W	
R680	1-216-111-00	METAL CHIP	390K	5%	1/10W	
R681	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R682	1-216-097-00	METAL CHIP	100K	5%	1/10W	

Ref. No.	Part No.	Description	Remark
R686	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R687	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R688	1-216-119-00	METAL CHIP 820K 5% 1/10W	
R689	1-216-111-00	METAL CHIP 390K 5% 1/10W	
R690	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R691	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R692	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R693	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R694	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R695	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R696	1-216-009-00	METAL CHIP 22 5% 1/10W	
R699	1-216-295-00	METAL CHIP 0 5% 1/10W	
R702	1-216-295-00	METAL CHIP 0 5% 1/10W	
R703	1-216-029-00	METAL CHIP 150 5% 1/10W	
R704	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R723	1-216-029-00	METAL CHIP 150 5% 1/10W	
R725	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R727	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R728	1-216-295-00	METAL CHIP 0 5% 1/10W	
R729	1-216-025-00	METAL CHIP 100 5% 1/10W	
R730	1-216-041-00	METAL CHIP 470 5% 1/10W	
R731	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R733	1-216-050-00	METAL GLAZE 1.1K 5% 1/10W	
R734	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R735	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R736	1-216-035-00	METAL CHIP 270 5% 1/10W	
R737	1-216-043-00	METAL CHIP 560 5% 1/10W	
R738	1-216-043-00	METAL CHIP 560 5% 1/10W	
R739	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R740	1-216-031-00	METAL CHIP 180 5% 1/10W	
R741	1-216-025-00	METAL CHIP 100 5% 1/10W	
R742	1-216-041-00	METAL CHIP 470 5% 1/10W	
R743	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R744	1-216-033-00	METAL CHIP 220 5% 1/10W	
R745	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R746	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R747	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R748	1-216-035-00	METAL CHIP 270 5% 1/10W	
R767	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R768	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R769	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R770	1-216-041-00	METAL CHIP 470 5% 1/10W	
R771	1-216-045-00	METAL CHIP 680 5% 1/10W	
R772	1-216-045-00	METAL CHIP 680 5% 1/10W	
R773	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R774	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R775	1-216-041-00	METAL CHIP 470 5% 1/10W	
R776	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R777	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R778	1-216-049-00	METAL CHIP 1K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R779	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R780	1-216-035-00	METAL CHIP 270 5% 1/10W	
R788	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R789	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R790	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R791	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R795	1-216-295-00	METAL CHIP 0 5% 1/10W	
R796	1-216-295-00	METAL CHIP 0 5% 1/10W	
R799	1-216-295-00	METAL CHIP 0 5% 1/10W	
R816	1-216-025-00	METAL CHIP 100 5% 1/10W	
R817	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R849	1-216-295-00	METAL CHIP 0 5% 1/10W	
R899	1-216-295-00	METAL CHIP 0 5% 1/10W	
R901	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R902	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R903	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R906	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R912	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R913	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R917	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R918	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R919	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R920	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R921	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R922	1-216-037-00	METAL CHIP 330 5% 1/10W	
R923	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R924	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R926	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R927	1-216-013-00	METAL CHIP 33 5% 1/10W	
R928	1-216-041-00	METAL CHIP 470 5% 1/10W	
R930	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R931	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R932	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R933	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R934	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R935	1-216-025-00	METAL CHIP 100 5% 1/10W	
R937	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R939	1-216-295-00	METAL CHIP 0 5% 1/10W	
R943	1-216-295-00	METAL CHIP 0 5% 1/10W	
R967	1-216-295-00	METAL CHIP 0 5% 1/10W	
R968	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	

〈 VARIABLE RESISTOR 〉

Ref. No.	Part No.	Description	Remark
RV601	1-230-867-11	RES, ADJ, METAL 1K	
RV602	1-230-866-11	RES, ADJ, METAL 470	
RV603	1-230-866-11	RES, ADJ, METAL 470	
RV604	1-230-866-11	RES, ADJ, METAL 470	
RV902	1-230-870-11	RES, ADJ, METAL 10K	

Ref. No.	Part No.	Description	Remark
		< CRYSTAL >	
X701	1-567-344-21	VIBRATOR, CRYSTAL (VCO)	
X702	1-567-733-11	VIBRATOR, CRYSTAL	
**			
*	A-7040-159-A	MS-4 BOARD, COMPLETE ******************** (Ref. No 13000 Series)	
		< CAPACITOR >	
C903	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
		< CONNECTOR >	
CN001	1-506-485-11	PIN, CONNECTOR 6P	
**			
*	A-7061-826-A	PA-27 (P) BOARD, COMPLETE ************************* (Ref. No 7000 Series)	
*	4-911-047-01	VIBRATION CONTROL (D)	
		< CAPACITOR >	
C001	1-163-012-00	CERAMIC CHIP 0.0018uF 10% 50V	
C002	1-124-584-00	ELECT 100uF 20% 10V	
C003	1-126-154-11	ELECT 47uF 20% 6.3V	
C004	1-126-154-11	ELECT 47uF 20% 6.3V	
C005	1-130-490-11	MYLAR 0.039uF 5% 50V	
C006	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C007	1-130-479-00	MYLAR 0.0047uF 5% 50V	
C008	1-126-154-11	ELECT 47uF 20% 6.3V	
C009	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C010	1-126-154-11	ELECT 47uF 20% 6.3V	
C011	1-130-469-00	MYLAR 680PF 5% 50V	
C012	1-130-482-00	MYLAR 0.0082uF 5% 50V	
C013	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C014	1-135-156-21	TANTALUM CHIP 6.8uF 10% 10V	
C015	1-135-072-21	TANTALUM CHIP 0.22uF 10% 35V	
C016	1-126-153-11	ELECT 22uF 20% 6.3V	
C017	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C018	1-126-153-11	ELECT 22uF 20% 6.3V	
C019	1-126-153-11	ELECT 22uF 20% 6.3V	
C031	1-124-584-00	ELECT 100uF 20% 10V	
C032	1-124-584-00	ELECT 100uF 20% 10V	
C033	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C034	1-126-154-11	ELECT 47uF 20% 6.3V	
C035	1-126-154-11	ELECT 47uF 20% 6.3V	
C036	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C037	1-126-154-11	ELECT 47uF 20% 6.3V	
C038	1-135-156-21	TANTALUM CHIP 6.8uF 10% 10V	
C039	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C040	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C041	1-109-814-11	CAP, CHIP MICA 220PF	
C042	1-126-154-11	ELECT 47uF 20% 6.3V	
C043	1-126-153-11	ELECT 22uF 20% 6.3V	
C044	1-126-154-11	ELECT 47uF 20% 6.3V	
C051	1-163-012-00	CERAMIC CHIP 0.0018uF 10% 50V	
C052	1-124-584-00	ELECT 100uF 20% 10V	
C053	1-126-154-11	ELECT 47uF 20% 6.3V	
C054	1-126-154-11	ELECT 47uF 20% 6.3V	
C055	1-130-490-11	MYLAR 0.039uF 5% 50V	
C056	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C057	1-130-479-00	MYLAR 0.0047uF 5% 50V	
C058	1-126-154-11	ELECT 47uF 20% 6.3V	
C059	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C060	1-126-154-11	ELECT 47uF 20% 6.3V	
C061	1-130-469-00	MYLAR 680PF 5% 50V	
C062	1-130-482-00	MYLAR 0.0082uF 5% 50V	
C063	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C064	1-135-156-21	TANTALUM CHIP 6.8uF 10% 10V	
C065	1-135-072-21	TANTALUM CHIP 0.22uF 10% 35V	
C066	1-126-153-11	ELECT 22uF 20% 6.3V	
C067	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C068	1-126-153-11	ELECT 22uF 20% 6.3V	
C069	1-126-153-11	ELECT 22uF 20% 6.3V	
		< CONNECTOR >	
CN001	1-563-314-11	CONNECTOR, BOARD TO BOARD 20P	
		< DIODE >	
D031	8-719-104-34	DIODE 1S2836	
D032	8-719-104-34	DIODE 1S2836	
D033	8-719-104-34	DIODE 1S2836	
		< IC >	
IC001	8-752-009-90	IC CX20099	
IC002	8-759-981-92	IC RC4558M	
IC003	8-759-981-92	IC RC4558M	
IC004	8-752-322-57	IC CXD1077M	
IC005	8-759-908-15	IC TL431CLP	
		< COIL >	
L001	1-408-793-21	INDUCTOR CHIP 220uH	
		< TRANSISTOR >	
Q001	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q002	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q031	8-729-901-06	TRANSISTOR DTA144EK	
Q032	8-729-901-06	TRANSISTOR DTA144EK	

Ref. No.	Part No.	Description	Remark
Q033	8-729-901-06	TRANSISTOR DTA144EK	
Q034	8-729-216-22	TRANSISTOR 2SA1162-G	
Q035	8-729-216-22	TRANSISTOR 2SA1162-G	
Q051	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q052	8-729-202-38	TRANSISTOR 2SC3326N-A	

〈 RESISTOR 〉

Ref. No.	Part No.	Description	Remark
R001	1-216-043-00	METAL CHIP 560 5% 1/10W	
R002	1-216-078-00	METAL GLAZE 16K 5% 1/10W	
R003	1-216-072-00	METAL CHIP 9.1K 5% 1/10W	
R004	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R005	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R006	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R007	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R008	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R009	1-216-045-00	METAL CHIP 680 5% 1/10W	
R010	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R012	1-216-677-11	METAL CHIP 12K 0.5% 1/10W	
R013	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R014	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R015	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R016	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R017	1-216-058-00	METAL GLAZE 2.4K 5% 1/10W	
R018	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R019	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R020	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R021	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R022	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R023	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R024	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R031	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R032	1-216-700-11	METAL CHIP 470K 1% 1/10W	
R033	1-216-022-00	METAL CHIP 75 5% 1/10W	
R034	1-216-039-00	METAL CHIP 390 5% 1/10W	
R035	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R036	1-216-653-11	METAL CHIP 1.2K 0.5% 1/10W	
R037	1-216-661-11	METAL CHIP 2.7K 0.5% 1/10W	
R039	1-215-401-11	METAL 150 1% 1/6W	
R040	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R041	1-216-295-00	METAL CHIP 0 5% 1/10W	
R042	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R043	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R051	1-216-043-00	METAL CHIP 560 5% 1/10W	
R052	1-216-078-00	METAL GLAZE 16K 5% 1/10W	
R053	1-216-072-00	METAL CHIP 9.1K 5% 1/10W	
R054	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R055	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R056	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R057	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R058	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R059	1-216-045-00	METAL CHIP 680 5% 1/10W	
R060	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R062	1-216-677-11	METAL CHIP 12K 0.5% 1/10W	
R063	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R064	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R065	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R066	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R067	1-216-058-00	METAL GLAZE 2.4K 5% 1/10W	
R068	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R069	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R070	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R071	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R072	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R073	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R074	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	

〈 VARIABLE RESISTOR 〉

Ref. No.	Part No.	Description	Remark
RV001	1-230-524-11	RES, ADJ, METAL 22K	
RV002	1-230-521-11	RES, ADJ, METAL 2.2K	
RV031	1-230-521-11	RES, ADJ, METAL 2.2K	
RV032	1-230-529-11	RES, ADJ, METAL 470K	
RV051	1-230-524-11	RES, ADJ, METAL 22K	
RV052	1-230-521-11	RES, ADJ, METAL 2.2K	

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* A-7063-299-A PD-19 (P) BOARD, COMPLETE
****
(Ref. No 7000 Series)

* 4-911-047-01 VIBRATION CONTROL (D)

〈 CAPACITOR 〉

Ref. No.	Part No.	Description	Remark
C851	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C852	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C853	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C854	1-163-235-11	CERAMIC CHIP 22PF 5% 50V	
C856	1-135-156-21	TANTALUM CHIP 6.8uF 10% 10V	
C857	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C858	1-135-145-11	TANTALUM CHIP 0.47uF 10% 35V	
C859	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C860	1-135-156-21	TANTALUM CHIP 6.8uF 10% 10V	
C861	1-163-235-11	CERAMIC CHIP 22PF 5% 50V	
C862	1-163-085-00	CERAMIC CHIP 2PF 50V	
C863	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C864	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C867	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C868	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	
C869	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
C870	1-163-115-00	CERAMIC CHIP 82PF 5% 50V	
C871	1-163-035-00	CERAMIC CHIP 0.047uF 50V	

PD-19 (P)

Ref. No.	Part No.	Description	Remark
C872	1-135-156-21	TANTALUM CHIP 6.8uF 10% 10V	
C873	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C874	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C875	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C876	1-163-005-11	CERAMIC CHIP 470PF 10% 50V	
C877	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C878	1-135-156-21	TANTALUM CHIP 6.8uF 10% 10V	
C879	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C880	1-135-156-21	TANTALUM CHIP 6.8uF 10% 10V	
C881	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C882	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C884	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C885	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C886	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C887	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C888	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C889	1-135-156-21	TANTALUM CHIP 6.8uF 10% 10V	

(CONNECTOR)

Ref. No.	Part No.	Description	Remark
* CN851	1-565-107-21	PIN, CONNECTOR (PC BOARD) 35P	
* CN852	1-565-107-21	PIN, CONNECTOR (PC BOARD) 35P	
CN853	1-506-777-11	CONNECTOR, BOARD TO BOARD 20P	

(DIODE)

Ref. No.	Part No.	Description	Remark
D851	8-719-104-34	DIODE 1S2836	
D852	8-719-400-18	DIODE MA152WK	
D853	8-719-400-18	DIODE MA152WK	

(IC)

Ref. No.	Part No.	Description	Remark
IC851	8-752-324-45	IC CXD1066Q-Z	
IC852	8-759-929-17	IC CXD1051M	
IC853	8-752-010-30	IC CX20103	
IC854	8-752-010-20	IC CX20102	
IC855	8-752-332-28	IC CXK5864BM-12L-TL	
IC856	8-759-948-61	IC CX23011-Z	
IC857	8-759-911-19	IC CX23012	
IC858	8-759-054-79	IC CF77499PG	
IC859	8-752-835-09	IC CXP5084H-645Q	
IC860	8-759-972-13	IC CF77309FR	

(COIL)

Ref. No.	Part No.	Description	Remark
L851	1-410-393-11	INDUCTOR CHIP 100uH	
L852	1-410-393-11	INDUCTOR CHIP 100uH	
L853	1-410-393-11	INDUCTOR CHIP 100uH	
L855	1-410-393-11	INDUCTOR CHIP 100uH	
L856	1-410-393-11	INDUCTOR CHIP 100uH	
L857	1-410-393-11	INDUCTOR CHIP 100uH	
L858	1-410-393-11	INDUCTOR CHIP 100uH	
L859	1-410-393-11	INDUCTOR CHIP 100uH	
L860	1-410-393-11	INDUCTOR CHIP 100uH	
L861	1-410-393-11	INDUCTOR CHIP 100uH	

Ref. No.	Part No.	Description	Remark
L862	1-410-393-11	INDUCTOR CHIP 100uH	

(TRANSISTOR)

Ref. No.	Part No.	Description	Remark
Q851	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q852	8-729-122-63	TRANSISTOR 2SA1226-E4	
Q853	8-729-102-07	TRANSISTOR 2SC2223-F13	

(RESISTOR)

Ref. No.	Part No.	Description	Remark
R851	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R852	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R853	1-216-033-00	METAL CHIP 220 5% 1/10W	
R854	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R855	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R856	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R857	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R858	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R859	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R860	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R861	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R862	1-216-025-00	METAL CHIP 100 5% 1/10W	
R863	1-216-041-00	METAL CHIP 470 5% 1/10W	
R864	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R866	1-216-041-00	METAL CHIP 470 5% 1/10W	
R867	1-216-295-00	METAL CHIP 0 5% 1/10W	
R868	1-216-295-00	METAL CHIP 0 5% 1/10W	
R869	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R870	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R871	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R872	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R873	1-216-041-00	METAL CHIP 470 5% 1/10W	
R874	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R875	1-216-295-00	METAL CHIP 0 5% 1/10W	
R876	1-216-045-00	METAL CHIP 680 5% 1/10W	
R879	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R880	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R881	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R882	1-216-043-00	METAL CHIP 560 5% 1/10W	
R883	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R884	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R886	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R887	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R888	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R889	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R890	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R891	1-216-295-00	METAL CHIP 0 5% 1/10W	

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description	Remark
RV851	1-230-869-11	RES, ADJ, METAL 4.7K	
RV854	1-230-868-11	RES, ADJ, METAL 2.2K	

Ref. No.	Part No.	Description			Remark
		(CRYSTAL)			
X851	1-567-669-91	VIBRATOR, LITHIUM TANTALATE			
X852	1-567-346-11	OSCILLATOR, CERAMIC (5MHz)			

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* A-7061-827-A RP-73 (P) BOARD, COMPLETE
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(Ref. No 2000 Series)

Ref. No.	Part No.	Description			Remark
		(CAPACITOR)			
C001	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C002	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C003	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C005	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C006	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C007	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C008	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C009	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C010	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C011	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C012	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C013	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C015	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C016	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C017	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C020	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C021	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C022	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C023	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C024	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C025	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C027	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C028	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C029	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C030	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C031	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C032	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C033	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C034	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C035	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C036	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C037	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C038	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C039	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C040	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C041	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C042	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C043	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C044	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C045	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C046	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
		(DIODE)			
D001	8-719-801-41	DIODE	1SS196		
D002	8-719-801-41	DIODE	1SS196		
		(IC)			
IC001	8-752-033-00	IC	CXA1234AR		
		(COIL)			
L001	1-410-385-11	INDUCTOR CHIP	22uH		
L002	1-410-656-11	INDUCTOR CHIP	150uH		
L004	1-410-393-11	INDUCTOR CHIP	100uH		
L005	1-410-381-11	INDUCTOR CHIP	10uH		
L007	1-410-393-11	INDUCTOR CHIP	100uH		
L008	1-410-384-31	INDUCTOR CHIP	18uH		
L009	1-410-384-31	INDUCTOR CHIP	18uH		
		(TRANSISTOR)			
Q002	8-729-102-07	TRANSISTOR	2SC2223-F13		
Q003	8-729-102-07	TRANSISTOR	2SC2223-F13		
		(RESISTOR)			
R001	1-216-089-00	METAL CHIP	47K	5%	1/10W
R002	1-216-073-00	METAL CHIP	10K	5%	1/10W
R003	1-216-081-00	METAL CHIP	22K	5%	1/10W
R004	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R005	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R006	1-216-081-00	METAL CHIP	22K	5%	1/10W
R007	1-216-834-11	METAL CHIP	12K	5%	1/16W
R008	1-216-835-11	METAL CHIP	15K	5%	1/16W
R009	1-216-837-11	METAL CHIP	22K	5%	1/16W
R010	1-216-089-00	METAL CHIP	47K	5%	1/10W
R011	1-216-073-00	METAL CHIP	10K	5%	1/10W
R012	1-216-081-00	METAL CHIP	22K	5%	1/10W
R013	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R014	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R015	1-216-085-00	METAL CHIP	33K	5%	1/10W
R016	1-216-081-00	METAL CHIP	22K	5%	1/10W
R017	1-216-085-00	METAL CHIP	33K	5%	1/10W
R018	1-216-081-00	METAL CHIP	22K	5%	1/10W
R019	1-216-089-00	METAL CHIP	47K	5%	1/10W
R020	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R021	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R026	1-216-837-11	METAL CHIP	22K	5%	1/16W
R027	1-216-833-11	METAL CHIP	10K	5%	1/16W
R028	1-216-797-11	METAL CHIP	10	5%	1/16W
R029	1-216-812-11	METAL CHIP	180	5%	1/16W
R030	1-216-837-11	METAL CHIP	22K	5%	1/16W

RP-73 (P) RP-103 (P)

Ref. No.	Part No.	Description	Remark
R031	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R032	1-216-797-11	METAL CHIP 10 5% 1/16W	
R033	1-216-812-11	METAL CHIP 180 5% 1/16W	

〈 VARIABLE RESISTOR 〉

RV001	1-230-871-11	RES, ADJ, METAL 22K	
RV002	1-230-871-11	RES, ADJ, METAL 22K	
RV003	1-230-869-11	RES, ADJ, METAL 4.7K	
RV004	1-230-869-11	RES, ADJ, METAL 4.7K	

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* A-7062-166-A RP-103 (P) BOARD, COMPLETE

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(Ref. No 3000 Series)

〈 CAPACITOR 〉

C001	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C002	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C003	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C005	1-164-330-21	CERAMIC CHIP 0.22uF 10% 16V	
C006	1-135-161-21	TANTALUM CHIP 22uF 10% 10V	
C007	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C008	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C009	1-135-161-21	TANTALUM CHIP 22uF 10% 10V	
C010	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C011	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C012	1-164-330-21	CERAMIC CHIP 0.22uF 10% 16V	
C013	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C015	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C016	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C017	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C020	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C021	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C022	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C023	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C024	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C025	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C027	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C029	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C030	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C031	1-164-218-11	CERAMIC CHIP 180PF 0.25PF 50V	
C032	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C033	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C034	1-162-912-11	CERAMIC CHIP 7PF 0.5PF 50V	
C035	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C036	1-164-218-11	CERAMIC CHIP 180PF 0.25PF 50V	
C037	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C038	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C039	1-162-912-11	CERAMIC CHIP 7PF 0.5PF 50V	
C040	1-162-913-11	CERAMIC CHIP 8PF 0.5PF 50V	
C041	1-162-913-11	CERAMIC CHIP 8PF 0.5PF 50V	

Ref. No.	Part No.	Description	Remark
C042	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C043	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C044	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C045	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C046	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	

〈 DIODE 〉

D001	8-719-801-41	DIODE 1SS196	
D002	8-719-801-41	DIODE 1SS196	

〈 IC 〉

IC001	8-752-033-00	IC CXA1234AR	

〈 COIL 〉

L001	1-410-385-11	INDUCTOR CHIP 22uH	
L002	1-410-656-11	INDUCTOR CHIP 150uH	
L004	1-410-393-11	INDUCTOR CHIP 100uH	
L005	1-410-381-11	INDUCTOR CHIP 10uH	
L007	1-410-393-11	INDUCTOR CHIP 100uH	
L008	1-410-384-31	INDUCTOR CHIP 18uH	
L009	1-410-384-31	INDUCTOR CHIP 18uH	

〈 TRANSISTOR 〉

Q002	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q003	8-729-102-07	TRANSISTOR 2SC2223-F13	

〈 RESISTOR 〉

R001	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R002	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R003	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R004	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R005	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R006	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R007	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R008	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R009	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R010	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R011	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R012	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R013	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R014	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R017	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R018	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R019	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R020	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R021	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R026	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R027	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R028	1-216-797-11	METAL CHIP 10 5% 1/16W	
R029	1-216-812-11	METAL CHIP 180 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R030	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R031	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R032	1-216-797-11	METAL CHIP 10 5% 1/16W	
R033	1-216-812-11	METAL CHIP 180 5% 1/16W	
		〈 VARIABLE RESISTOR 〉	
RV002	1-230-871-11	RES, ADJ, METAL 22K	
RV003	1-230-869-11	RES, ADJ, METAL 4.7K	
RV004	1-230-869-11	RES, ADJ, METAL 4.7K	

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Ref. No.	Part No.	Description	Remark
*	A-7061-818-A	RS-31 BOARD, COMPLETE ********************* (Ref. No 6000 Series)	
*	1-559-762-11	WIRE, FLAT TYPE 22P	
	3-712-410-01	HOLDER, RS	
	3-722-175-01	SPACER, MD	
		〈 CONNECTOR 〉	
CN301	1-506-481-11	PIN, CONNECTOR 2P	
CN302	1-506-481-11	PIN, CONNECTOR 2P	
* CN304	1-563-494-11	CONNECTOR, F.P.C 6P	
* CN305	1-565-211-11	CONNECTOR, FPC (ZIF) 22P	
		〈 DIODE 〉	
D320	8-719-800-76	DIODE 1SS226	
D321	8-719-800-76	DIODE 1SS226	
		〈 IC 〉	
IC301	8-759-908-81	IC MB3763PF	
IC302	8-759-908-81	IC MB3763PF	
		〈 PHOTO INTERUPTER 〉	
PH301	8-719-939-11	DIODE GP-2S09-B	
PH302	8-719-939-11	DIODE GP-2S09-B	
PH303	8-719-939-11	DIODE GP-2S09-B	
		〈 LINK, IC 〉	
⚠PS301	1-532-727-11	LINK, IC ICP-N5 (0.25A)	
		〈 TRANSISTOR 〉	
Q301	8-729-805-25	TRANSISTOR 2SB1121-S	
Q302	8-729-216-22	TRANSISTOR 2SA1162-G	
Q303	8-729-216-22	TRANSISTOR 2SA1162-G	
Q304	8-729-216-22	TRANSISTOR 2SA1162-G	
Q305	8-729-901-01	TRANSISTOR DTC144EK	
Q306	8-729-901-01	TRANSISTOR DTC144EK	
Q307	8-729-901-01	TRANSISTOR DTC144EK	

Ref. No.	Part No.	Description	Remark
		〈 RESISTOR 〉	
R302	1-216-174-00	METAL GLAZE 100 5% 1/8W	
R303	1-216-186-00	METAL GLAZE 330 5% 1/8W	
R304	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R305	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R306	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R307	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R308	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R309	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R320	1-216-041-00	METAL CHIP 470 5% 1/10W	
R321	1-216-041-00	METAL CHIP 470 5% 1/10W	
R322	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R323	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R324	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R325	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R326	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R327	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R328	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R329	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R330	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R331	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R332	1-216-073-00	METAL CHIP 10K 5% 1/10W	

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Ref. No.	Part No.	Description	Remark
*	A-7063-300-A	SE-10 (EP) BOARD, COMPLETE ************************** (Ref. No 5000 Series) (Including the IG-4 Board)	
	3-831-441-XX	CUSHION (5)	
		〈 CAPACITOR 〉	
C006	1-126-157-11	ELECT 10uF 20% 16V	
C008	1-163-229-11	CERAMIC CHIP 12PF 5% 50V	
C009	1-163-229-11	CERAMIC CHIP 12PF 5% 50V	
C010	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C011	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C012	1-126-163-11	ELECT 4.7uF 20% 50V	
C013	1-126-157-11	ELECT 10uF 20% 16V	
C014	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C015	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C016	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C017	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C018	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C019	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C020	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C021	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C022	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C028	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C031	1-163-038-00	CERAMIC CHIP 0.1uF 25V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SE-10 (EP)

Ref. No.	Part No.	Description				Remark
C032	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C033	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C034	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C035	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C036	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C037	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C101	1-126-157-11	ELECT	10uF	20%	16V	
C102	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C103	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C104	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C105	1-163-257-11	CERAMIC CHIP	180PF	5%	50V	
C106	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C107	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C108	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C109	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	
C110	1-126-320-11	ELECT, NONPOLAR R	10uF	20%	16V	
C111	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C112	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C113	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C114	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C115	1-126-157-11	ELECT	10uF	20%	16V	
C116	1-124-499-11	ELECT, NONPOLAR R	1uF	20%	50V	
C117	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C118	1-126-157-11	ELECT	10uF	20%	16V	
C119	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C120	1-163-209-00	CERAMIC CHIP	0.0015uF	5%	50V	
C121	1-163-209-00	CERAMIC CHIP	0.0015uF	5%	50V	
C122	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C127	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C128	1-124-767-00	ELECT	2.2uF	20%	50V	
C130	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C131	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C132	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C133	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C134	1-124-499-11	ELECT, NONPOLAR R	1uF	20%	50V	
C135	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C136	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C137	1-124-768-11	ELECT	4.7uF	20%	50V	
C201	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C202	1-163-257-11	CERAMIC CHIP	180PF	5%	50V	
C203	1-163-137-00	CERAMIC CHIP	680PF	5%	50V	
C204	1-163-239-11	CERAMIC CHIP	33PF	5%	50V	
C205	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C206	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C207	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C208	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C209	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C210	1-124-234-00	ELECT	22uF	20%	16V	
C211	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C212	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C213	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C214	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C215	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C216	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C217	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C218	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
C219	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C220	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C221	1-124-256-00	ELECT	1.5uF	20%	50V	
C223	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C224	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C226	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C251	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C252	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C301	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C302	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C303	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C304	1-124-584-00	ELECT	100uF	20%	10V	
C305	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C306	1-124-584-00	ELECT	100uF	20%	10V	
C307	1-126-163-11	ELECT	4.7uF	20%	50V	
C308	1-124-257-00	ELECT	2.2uF	20%	50V	
C309	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C310	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V	
C311	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C401	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C402	1-163-103-00	CERAMIC CHIP	27PF	5%	50V	
C403	1-126-163-11	ELECT	4.7uF	20%	50V	
C404	1-126-163-11	ELECT	4.7uF	20%	50V	
C405	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C406	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C407	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C408	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C409	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C410	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C411	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C412	1-126-157-11	ELECT	10uF	20%	16V	
C502	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C503	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C504	1-124-257-00	ELECT	2.2uF	20%	50V	
C505	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C506	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C508	1-124-589-11	ELECT	47uF	20%	16V	
C601	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C602	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C603	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C604	1-124-589-11	ELECT	47uF	20%	16V	
C605	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C606	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C607	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	

Ref. No.	Part No.	Description	Remark
C608	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C609	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C610	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C611	1-126-157-11	ELECT 10uF 20% 16V	
C612	1-126-157-11	ELECT 10uF 20% 16V	
C613	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C614	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C615	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C616	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C617	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C620	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C621	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C622	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C623	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C624	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C625	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C626	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C627	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C628	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C629	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C630	1-163-025-11	CERAMIC CHIP 0.001uF 50V	
C631	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C632	1-126-157-11	ELECT 10uF 20% 16V	
		〈 CONNECTOR 〉	
* CN001	1-566-641-11	CONNECTOR, HINGE (TAB) 18P	
* CN002	1-566-941-11	CONNECTOR, HINGE (TAB) 30P	
* CN003	1-566-641-11	CONNECTOR, HINGE (TAB) 18P	
CN004	1-566-943-11	CONNECTOR, BOARD TO BOARD 18P	
CN005	1-566-944-11	CONNECTOR, BOARD TO BOARD 22P	
CN011	1-565-212-11	CONNECTOR, FPC (ZIF) 26P	
* CN012	1-565-211-11	CONNECTOR, FPC (ZIF) 22P	
CN901	1-506-473-11	PIN, CONNECTOR 8P	
CN902	1-506-477-11	PIN, CONNECTOR 12P	
CN903	1-506-478-11	PIN, CONNECTOR 13P	
CN904	1-506-470-11	PIN, CONNECTOR 5P	
CN905	1-506-474-11	PIN, CONNECTOR 9P	
CN906	1-506-472-11	PIN, CONNECTOR 7P	
CN907	1-506-477-11	PIN, CONNECTOR 12P	
		〈 DIODE 〉	
D003	8-719-400-18	DIODE MA152WK	
D004	8-719-400-18	DIODE MA152WK	
D005	8-719-400-18	DIODE MA152WK	
D006	8-719-104-34	DIODE 1S2836	
D007	8-719-400-18	DIODE MA152WK	
D008	8-719-400-18	DIODE MA152WK	
D009	8-719-400-18	DIODE MA152WK	
D012	8-719-400-18	DIODE MA152WK	
D013	8-719-400-18	DIODE MA152WK	

Ref. No.	Part No.	Description	Remark
D015	8-719-104-34	DIODE 1S2836	
D016	8-719-104-34	DIODE 1S2836	
D102	8-719-800-76	DIODE 1SS226	
D103	8-719-800-76	DIODE 1SS226	
D104	8-719-104-34	DIODE 1S2836	
D105	8-719-400-18	DIODE MA152WK	
D106	8-719-400-18	DIODE MA152WK	
D107	8-719-104-34	DIODE 1S2836	
D108	8-719-400-18	DIODE MA152WK	
D109	8-719-400-18	DIODE MA152WK	
D110	8-719-104-34	DIODE 1S2836	
D111	8-719-400-18	DIODE MA152WK	
D112	8-719-104-34	DIODE 1S2836	
D201	8-719-400-18	DIODE MA152WK	
D203	8-719-105-83	DIODE RD5.1M-B3	
D301	8-719-400-18	DIODE MA152WK	
D302	8-719-400-18	DIODE MA152WK	
D401	8-719-800-76	DIODE 1SS226	
D701	8-719-400-18	DIODE MA152WK	
		〈 FILTER 〉	
FL201	1-235-611-21	BPF	
FL202	1-235-612-21	BPF	
		〈 IC 〉	
IC001	8-752-819-81	IC CXP80116-855Q	
IC002	8-752-838-32	IC CXP5048H-286Q	
IC003	8-752-833-77	IC CXP5048H-277Q	
IC004	8-759-144-21	IC uPD75106G-573-1B	
IC007	8-759-008-67	IC MC14066BF	
IC008	8-759-937-56	IC S-8054ALB-LM-S	
IC101	8-752-003-50	IC CX20035	
IC102	8-759-803-47	IC LA5005M	
IC103	8-759-925-66	IC BA6303F	
IC104	8-759-981-75	IC RC3403AM	
IC105	8-759-300-71	IC HD14053BFP	
IC106	8-759-971-25	IC MB674169U	
IC107	8-759-100-94	IC uPC358G2	
IC108	8-759-008-67	IC MC14066BF	
IC201	8-759-928-56	IC CXA1042M	
IC202	8-759-150-05	IC uPC324G2-E1	
IC203	8-759-300-71	IC HD14053BFP	
IC204	8-759-927-46	IC SN74HC00ANS	
IC205	8-759-710-86	IC NJM2233BM	
IC206	8-759-035-93	IC SC7S32F	
IC301	8-759-100-94	IC uPC358G2	
IC302	8-759-300-71	IC HD14053BFP	
IC303	8-759-300-71	IC HD14053BFP	
IC304	8-759-200-90	IC TC4538BF	
IC305	8-759-927-46	IC SN74HC00ANS	

SE-10 (EP)

Ref. No.	Part No.	Description	Remark
IC601	8-759-927-94	IC BU3707F	
IC602	8-759-927-52	IC BA7036LS	
IC603	8-759-100-93	IC uPC393G2	
IC604	8-759-150-05	IC uPC324G2-E1	
		(COIL)	
L001	1-408-777-00	INDUCTOR CHIP 10uH	
L002	1-408-777-00	INDUCTOR CHIP 10uH	
L003	1-408-777-00	INDUCTOR CHIP 10uH	
L101	1-408-777-00	INDUCTOR CHIP 10uH	
L401	1-408-777-00	INDUCTOR CHIP 10uH	
L402	1-408-777-00	INDUCTOR CHIP 10uH	
L403	1-408-783-00	INDUCTOR CHIP 33uH	
L404	1-408-777-00	INDUCTOR CHIP 10uH	
L501	1-408-777-00	INDUCTOR CHIP 10uH	
L601	1-408-777-00	INDUCTOR CHIP 10uH	
L602	1-408-777-00	INDUCTOR CHIP 10uH	
		(LINK, IC)	
⚠PS601	1-532-679-00	LINK, IC ICP-N15 (0.6A)	
		(TRANSISTOR)	
Q002	8-729-901-01	TRANSISTOR DTC144EK	
Q003	8-729-901-06	TRANSISTOR DTA144EK	
Q004	8-729-901-01	TRANSISTOR DTC144EK	
Q005	8-729-901-01	TRANSISTOR DTC144EK	
Q006	8-729-901-01	TRANSISTOR DTC144EK	
Q007	8-729-901-01	TRANSISTOR DTC144EK	
Q008	8-729-901-01	TRANSISTOR DTC144EK	
Q009	8-729-901-01	TRANSISTOR DTC144EK	
Q010	8-729-901-06	TRANSISTOR DTA144EK	
Q011	8-729-901-06	TRANSISTOR DTA144EK	
Q014	8-729-901-01	TRANSISTOR DTC144EK	
Q015	8-729-901-01	TRANSISTOR DTC144EK	
Q018	8-729-901-01	TRANSISTOR DTC144EK	
Q101	8-729-901-06	TRANSISTOR DTA144EK	
Q102	8-729-901-06	TRANSISTOR DTA144EK	
Q103	8-729-901-06	TRANSISTOR DTA144EK	
Q104	8-729-901-01	TRANSISTOR DTC144EK	
Q106	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q107	8-729-901-06	TRANSISTOR DTA144EK	
Q108	8-729-901-06	TRANSISTOR DTA144EK	
Q109	8-729-901-06	TRANSISTOR DTA144EK	
Q110	8-729-901-06	TRANSISTOR DTA144EK	
Q111	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q112	8-729-901-01	TRANSISTOR DTC144EK	
Q113	8-729-901-01	TRANSISTOR DTC144EK	
Q114	8-729-901-01	TRANSISTOR DTC144EK	
Q115	8-729-901-01	TRANSISTOR DTC144EK	
Q116	8-729-901-06	TRANSISTOR DTA144EK	
Q202	8-729-216-22	TRANSISTOR 2SA1162-G	
Q205	8-729-901-01	TRANSISTOR DTC144EK	
Q209	8-729-901-06	TRANSISTOR DTA144EK	
Q210	8-729-901-01	TRANSISTOR DTC144EK	
Q250	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q251	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q301	8-729-901-06	TRANSISTOR DTA144EK	
Q302	8-729-901-01	TRANSISTOR DTC144EK	
Q303	8-729-901-01	TRANSISTOR DTC144EK	
Q304	8-729-901-01	TRANSISTOR DTC144EK	
Q305	8-729-901-01	TRANSISTOR DTC144EK	
Q306	8-729-901-06	TRANSISTOR DTA144EK	
Q307	8-729-901-01	TRANSISTOR DTC144EK	
Q308	8-729-901-01	TRANSISTOR DTC144EK	
Q309	8-729-901-01	TRANSISTOR DTC144EK	
Q401	8-729-216-22	TRANSISTOR 2SA1162-G	
Q402	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q403	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q404	8-729-216-22	TRANSISTOR 2SA1162-G	
Q405	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q406	8-729-216-22	TRANSISTOR 2SA1162-G	
Q407	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q408	8-729-216-22	TRANSISTOR 2SA1162-G	
Q409	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q410	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q411	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q502	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q503	8-729-901-06	TRANSISTOR DTA144EK	
Q504	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q505	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q506	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q507	8-729-901-06	TRANSISTOR DTA144EK	
Q508	8-729-901-06	TRANSISTOR DTA144EK	
Q601	8-729-901-06	TRANSISTOR DTA144EK	
Q604	8-729-805-25	TRANSISTOR 2SB1121-S	
Q605	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q606	8-729-901-06	TRANSISTOR DTA144EK	
Q701	8-729-901-06	TRANSISTOR DTA144EK	
Q702	8-729-901-06	TRANSISTOR DTA144EK	
Q703	8-729-901-01	TRANSISTOR DTC144EK	
Q704	8-729-216-22	TRANSISTOR 2SA1162-G	
Q705	8-729-216-22	TRANSISTOR 2SA1162-G	
Q706	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q707	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q708	8-729-901-06	TRANSISTOR DTA144EK	
Q709	8-729-901-06	TRANSISTOR DTA144EK	
Q710	8-729-901-06	TRANSISTOR DTA144EK	
Q711	8-729-901-06	TRANSISTOR DTA144EK	
Q712	8-729-901-06	TRANSISTOR DTA144EK	
Q713	8-729-901-01	TRANSISTOR DTC144EK	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
Q714	8-729-901-01	TRANSISTOR DTC144EK	
		< RESISTOR >	
R001	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R002	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R003	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R005	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R009	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R010	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R011	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R012	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R013	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R014	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R015	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R016	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R017	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R018	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R019	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R020	1-216-687-11	METAL CHIP 33K 0.5% 1/10W	
R021	1-216-687-11	METAL CHIP 33K 0.5% 1/10W	
R022	1-216-687-11	METAL CHIP 33K 0.5% 1/10W	
R023	1-216-674-11	METAL CHIP 9.1K 0.5% 1/10W	
R024	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R025	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R026	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R027	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R028	1-216-039-00	METAL CHIP 390 5% 1/10W	
R029	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R030	1-216-295-00	METAL CHIP 0 5% 1/10W	
R031	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R032	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R033	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R034	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R035	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R036	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R037	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R038	1-216-039-00	METAL CHIP 390 5% 1/10W	
R039	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R040	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R041	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R043	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R045	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R046	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R047	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R048	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R049	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R050	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R051	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R052	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R053	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R054	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R055	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R056	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R057	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R058	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R059	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R060	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R061	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R062	1-216-039-00	METAL CHIP 390 5% 1/10W	
R063	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R064	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R065	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R066	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R067	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R068	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R069	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R070	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R071	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R072	1-216-043-00	METAL CHIP 560 5% 1/10W	
R073	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R074	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R075	1-216-039-00	METAL CHIP 390 5% 1/10W	
R076	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R077	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R078	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R079	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R080	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R081	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R082	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R083	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R084	1-216-080-00	METAL CHIP 20K 5% 1/10W	
R085	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R086	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R087	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R088	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R089	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R090	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R091	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R092	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R093	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R094	1-216-686-11	METAL CHIP 30K 0.5% 1/10W	
R095	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R096	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R097	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R098	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R101	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R102	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R103	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R104	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R105	1-216-083-00	METAL CHIP 27K 5% 1/10W	

SE-10 (EP)

Ref. No.	Part No.	Description				Remark
R106	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R107	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R108	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R109	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R110	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R111	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R112	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R113	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R114	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R115	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R116	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R117	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R118	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R119	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R120	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R121	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R122	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R124	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R125	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R126	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R127	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R128	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R129	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R130	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R131	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R132	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R133	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R135	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R137	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W	
R138	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R139	1-216-295-00	METAL CHIP	0	5%	1/10W	
R140	1-216-295-00	METAL CHIP	0	5%	1/10W	
R141	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R142	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R143	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R148	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R149	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R150	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R151	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R152	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R153	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R154	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R155	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R156	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R157	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R158	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R159	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R160	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R161	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R162	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R163	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R164	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R165	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R167	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R168	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R169	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R170	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R171	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R172	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R173	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R174	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R175	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R177	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R180	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R181	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R204	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R205	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R206	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R207	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R208	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R209	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R210	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R211	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R215	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R216	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R217	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R218	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R219	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R220	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R221	1-216-111-00	METAL CHIP	390K	5%	1/10W	
R222	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R223	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R224	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R225	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R226	1-216-045-00	METAL CHIP	680	5%	1/10W	
R227	1-216-045-00	METAL CHIP	680	5%	1/10W	
R228	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R234	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R235	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R236	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R237	1-216-295-00	METAL CHIP	0	5%	1/10W	
R250	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R251	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R252	1-216-047-00	METAL CHIP	820	5%	1/10W	
R253	1-216-039-00	METAL CHIP	390	5%	1/10W	
R254	1-216-035-00	METAL CHIP	270	5%	1/10W	
R255	1-216-041-00	METAL CHIP	470	5%	1/10W	
R301	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R302	1-216-083-00	METAL CHIP	27K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R303	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R304	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R305	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R306	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R307	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R308	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R309	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R310	1-216-295-00	METAL CHIP	0	5%	1/10W	
R312	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R314	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R315	1-216-295-00	METAL CHIP	0	5%	1/10W	
R316	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R317	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R318	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R319	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R320	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R321	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R322	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R323	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R324	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R325	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R326	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R327	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R328	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R329	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R330	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R331	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R332	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R401	1-216-043-00	METAL CHIP	560	5%	1/10W	
R402	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R403	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R404	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R405	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R406	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R407	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R408	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R409	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R410	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R411	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R412	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R413	1-216-052-00	METAL CHIP	1.3K	5%	1/10W	
R414	1-216-045-00	METAL CHIP	680	5%	1/10W	
R415	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R416	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R417	1-216-047-00	METAL CHIP	820	5%	1/10W	
R418	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R419	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R420	1-216-029-00	METAL CHIP	150	5%	1/10W	
R421	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R422	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R502	1-216-045-00	METAL CHIP	680	5%	1/10W	
R503	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R504	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R505	1-216-033-00	METAL CHIP	220	5%	1/10W	
R506	1-216-035-00	METAL CHIP	270	5%	1/10W	
R507	1-216-041-00	METAL CHIP	470	5%	1/10W	
R508	1-216-072-00	METAL CHIP	9.1K	5%	1/10W	
R509	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R510	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R511	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R512	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R513	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R514	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R515	1-216-041-00	METAL CHIP	470	5%	1/10W	
R551	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R552	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R553	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R554	1-216-685-11	METAL CHIP	27K	0.5%	1/10W	
R555	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R556	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R557	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R558	1-216-295-00	METAL CHIP	0	5%	1/10W	
R561	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R562	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R563	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R564	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R565	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R566	1-216-041-00	METAL CHIP	470	5%	1/10W	
R567	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R602	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R604	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R605	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R606	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R607	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R608	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R609	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R610	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R611	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R612	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R613	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R614	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R615	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R616	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R617	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R618	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R619	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R620	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R621	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R622	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R623	1-216-049-00	METAL CHIP	1K	5%	1/10W	

Ref. No.	Part No.	Description	Remark
R624	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R625	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R626	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R627	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R628	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R629	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R630	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R632	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R633	1-216-045-00	METAL CHIP 680 5% 1/10W	
R634	1-216-045-00	METAL CHIP 680 5% 1/10W	
R635	1-216-045-00	METAL CHIP 680 5% 1/10W	
R636	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R637	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R638	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R639	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R640	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R641	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R643	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R701	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R702	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R703	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R704	1-216-693-11	METAL CHIP 56K 0.5% 1/10W	
R705	1-216-663-11	METAL CHIP 3.3K 0.5% 1/10W	
R706	1-216-697-11	METAL CHIP 82K 0.5% 1/10W	
R707	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R708	1-216-685-11	METAL CHIP 27K 0.5% 1/10W	
R709	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R710	1-216-681-11	METAL CHIP 18K 0.5% 1/10W	
R711	1-216-673-11	METAL CHIP 8.2K 0.5% 1/10W	
R712	1-216-685-11	METAL CHIP 27K 0.5% 1/10W	
R713	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R714	1-216-663-11	METAL CHIP 3.3K 0.5% 1/10W	

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description	Remark
RV101	1-230-875-21	RES, ADJ, METAL 220K	
RV102	1-230-875-21	RES, ADJ, METAL 220K	
RV103	1-230-871-11	RES, ADJ, METAL 22K	
RV104	1-230-871-11	RES, ADJ, METAL 22K	
RV105	1-230-870-11	RES, ADJ, METAL 10K	
RV106	1-230-870-11	RES, ADJ, METAL 10K	
RV201	1-230-873-11	RES, ADJ, METAL 47K	
RV203	1-230-869-11	RES, ADJ, METAL 4.7K	
RV204	1-230-869-11	RES, ADJ, METAL 4.7K	
RV301	1-230-868-11	RES, ADJ, METAL 2.2K	
RV302	1-230-868-11	RES, ADJ, METAL 2.2K	
RV303	1-230-869-11	RES, ADJ, METAL 4.7K	
RV304	1-230-873-11	RES, ADJ, METAL 47K	

(CRYSTAL)

Ref. No.	Part No.	Description	Remark
X001	1-577-116-21	OSCILLATOR, CRYSTAL 16MHz	
X002	1-567-346-11	OSCILLATOR, CERAMIC	
X003	1-567-346-11	OSCILLATOR, CERAMIC	
X004	1-567-160-21	OSCILLATOR, CERAMIC 4.19MHz	
X101	1-567-504-81	OSCILLATOR, CRYSTAL 4.433619MHz	

****

* A-7071-691-A TR-54 (P) BOARD, COMPLETE

****

(Ref. No 8000 Series)

Ref. No.	Part No.	Description	Remark
*	3-947-530-01	HOLDER, TERMINAL, S	

(DIODE)

Ref. No.	Part No.	Description	Remark
D401	8-719-106-79	DIODE RD13M-B1	
D402	8-719-106-79	DIODE RD13M-B1	
D403	8-719-106-08	DIODE RD6.2M-B2	
D404	8-719-106-08	DIODE RD6.2M-B2	
D405	8-719-106-08	DIODE RD6.2M-B2	
D406	8-719-106-08	DIODE RD6.2M-B2	
D407	8-719-106-08	DIODE RD6.2M-B2	
D416	8-719-106-08	DIODE RD6.2M-B2	

(JACK)

Ref. No.	Part No.	Description	Remark
J401	1-566-850-31	CONNECTOR, (S) TERMINAL 4P	
J402	1-566-850-31	CONNECTOR, (S) TERMINAL 4P	
J403	1-566-770-11	SOCKET, CONNECTOR 8P	

****

* A-7070-628-A TS-74 (LEFT) BOARD, COMPLETE

****

(Ref. No 1000 Series)

(TRANSISTOR)

Ref. No.	Part No.	Description	Remark
Q715	8-729-700-11	TRANSISTOR NJL7141E-N	

****

* A-7070-627-A TS-74 (RIGHT) BOARD, COMPLETE

****

(Ref. No 2000 Series)

(TRANSISTOR)

Ref. No.	Part No.	Description	Remark
Q715	8-729-700-11	TRANSISTOR NJL7141E-N	

****

* A-7063-313-A VR-38 (P) BOARD, COMPLETE

****

(Ref. No 8000 Series)

Ref. No.	Part No.	Description	Remark
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	

Ref. No.	Part No.	Description	Remark
		〈 CAPACITOR 〉	
C301	1-126-157-11	ELECT 10uF 20% 16V	
C302	1-126-163-11	ELECT 4. 7uF 20% 50V	
C303	1-126-163-11	ELECT 4. 7uF 20% 50V	
C304	1-126-157-11	ELECT 10uF 20% 16V	
C305	1-163-031-11	CERAMIC CHIP 0. 01uF 50V	
C309	1-163-031-11	CERAMIC CHIP 0. 01uF 50V	
C313	1-163-031-11	CERAMIC CHIP 0. 01uF 50V	
C314	1-163-031-11	CERAMIC CHIP 0. 01uF 50V	
C315	1-163-031-11	CERAMIC CHIP 0. 01uF 50V	
C317	1-126-154-11	ELECT 47uF 20% 6. 3V	
C318	1-163-031-11	CERAMIC CHIP 0. 01uF 50V	
C319	1-126-154-11	ELECT 47uF 20% 6. 3V	
C320	1-163-031-11	CERAMIC CHIP 0. 01uF 50V	
C321	1-126-154-11	ELECT 47uF 20% 6. 3V	
C322	1-126-154-11	ELECT 47uF 20% 6. 3V	
C323	1-126-154-11	ELECT 47uF 20% 6. 3V	
C324	1-126-154-11	ELECT 47uF 20% 6. 3V	
		〈 CONNECTOR 〉	
CN301	1-506-486-11	PIN, CONNECTOR 7P	
* CN302	1-566-208-11	PIN, CONNECTOR (PC BOARD) 15P	
CN303	1-506-486-11	PIN, CONNECTOR 7P	
CN304	1-506-475-11	PIN, CONNECTOR 10P	
CN305	1-506-482-11	PIN, CONNECTOR 3P	
		〈 DIODE 〉	
D309	8-719-157-54	DIODE RD12M-B	
D310	8-719-157-54	DIODE RD12M-B	
D311	8-719-157-54	DIODE RD12M-B	
D312	8-719-157-54	DIODE RD12M-B	
D313	8-719-157-54	DIODE RD12M-B	
D314	8-719-157-54	DIODE RD12M-B	
D318	8-719-157-54	DIODE RD12M-B	
D319	8-719-157-54	DIODE RD12M-B	
		〈 IC 〉	
IC303	8-759-521-07	IC MAX238CWG	
IC304	8-759-927-46	IC SN74HC00ANS	
IC307	8-759-300-71	IC HD14053BFP	
IC309	8-759-926-05	IC SN74HC125ANS	
IC310	8-759-926-05	IC SN74HC125ANS	
		〈 COIL 〉	
L301	1-408-970-21	INDUCTOR 10uH	
L302	1-408-970-21	INDUCTOR 10uH	
		〈 LINK, IC 〉	
PS301	1-532-679-00	LINK, IC ICP-N15 (0. 6A)	

Ref. No.	Part No.	Description	Remark
		〈 TRANSISTOR 〉	
Q303	8-729-901-01	TRANSISTOR DTC144EK	
Q304	8-729-901-01	TRANSISTOR DTC144EK	
Q306	8-729-901-01	TRANSISTOR DTC144EK	
Q307	8-729-901-01	TRANSISTOR DTC144EK	
		〈 RESISTOR 〉	
R301	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R302	1-216-041-00	METAL CHIP 470 5% 1/10W	
R303	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R304	1-216-295-00	METAL CHIP 0 5% 1/10W	
R305	1-216-295-00	METAL CHIP 0 5% 1/10W	
R306	1-216-295-00	METAL CHIP 0 5% 1/10W	
R307	1-216-295-00	METAL CHIP 0 5% 1/10W	
R309	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R316	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R329	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R330	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R331	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R332	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R333	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R334	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R335	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R336	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R337	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R338	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R339	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R340	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R341	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R342	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R343	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R344	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R345	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R346	1-216-025-00	METAL CHIP 100 5% 1/10W	
R347	1-216-025-00	METAL CHIP 100 5% 1/10W	
R348	1-216-025-00	METAL CHIP 100 5% 1/10W	
R349	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R350	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R351	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R352	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R353	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R355	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R358	1-216-295-00	METAL CHIP 0 5% 1/10W	
R359	1-216-295-00	METAL CHIP 0 5% 1/10W	
R360	1-216-295-00	METAL CHIP 0 5% 1/10W	
R362	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R363	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R364	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R368	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R369	1-216-089-00	METAL CHIP 47K 5% 1/10W	

VR-38 (P)

Ref. No.	Part No.	Description	Remark
		(PIN, CONNECTOR)	
W302	1-506-468-11	PIN, CONNECTOR 3P, MALE	
		**	
		MISCELLANEOUS *************	
⚠63	1-413-629-21	SWITCHING BLOCK (POWER BLOCK)	
67	1-690-730-11	CORD, CONNECTION	
74	1-537-414-11	TERMINAL BOARD	
360	1-535-535-11	TERMINAL, SHAFT GROUND	
373	X-3712-403-1	L-SW ASSY (LS-9 BOARD)	
401	A-7040-159-A	M-SW ASSY	
C901	1-161-057-00	CERAMIC 0.033uF 10% 50V	
C902	1-161-057-00	CERAMIC 0.033uF 10% 50V	
M901	A-7048-650-A	DRUM ASSY (DGH-0A0A-R)	
M902	8-835-304-11	MOTOR, DC U-11B (REEL)	
M903	8-835-364-01	MOTOR, DC BHF-2802B (CAPSTAN)	
M904	X-3711-936-1	MOTOR ASSY, FL (CASSETTE COMPARTMENT)	
M905	8-835-138-01	MOTOR, DC (DNR-5301B) (CONTROL)	
M906	A-7040-065-A	MOTOR ASSY, L (LOADING)	
M907	1-541-360-21	MOTOR, DC BLUSHLESS FAN	
⚠PM901	1-454-377-21	SOLENOID, PLUNGER (BRAKE)	
⚠PM902	1-454-377-31	SOLENOID, PLUNGER (CLEANING ROLLER)	
S901	1-570-407-11	SWITCH, SLIDE (CASSETTE LOADING)	
S903	1-553-226-00	SWITCH, LEAF (CASSETTE LOCK)	
S904	1-572-298-21	SWITCH, PUSH (REC PROOF, MPHG, ME/MP)	
		**	
		ACCESSORIES & PACKING MATERIALS ******************************	
⚠	1-590-910-11	CORD SET, POWER	
	1-693-036-21	REMOTE COMMANDER (RM-9650P)	
	3-704-281-01	BAG, PROTECTION (STANDARD)	
*	3-704-350-01	SHEET (STANDARD), PROTECTION	
	3-754-601-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-754-601-41	MANUAL, INSTRUCTION (FRENCH)	
	3-754-601-51	MANUAL, INSTRUCTION (GERMANY)	
	3-754-684-21	MANUAL, PROTOCOL	
	3-755-114-21	MANUAL, INSTANT INFORMATION	
*	3-946-809-11	INDIVIDUAL CARTON	
*	3-946-810-01	CUSHION (UPPER)	
*	3-946-811-01	CUSHION (LOWER)	
*	3-946-812-01	CUSHION (UPPER), ACCESSORY	
*	3-946-813-01	CUSHION (LOWER), ACCESSORY	
		**	

Ref. No.	Part No.	Description	Remark
		HARDWARE LIST *************	
#1	7-621-255-45	SCREW +BVTT 2X6 (S)	
#2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#3	7-682-555-09	SCREW +P 3X30	
#4	7-627-850-18	SCREW, PRECISION +P 1.4X2.5	
#5	7-621-772-10	SCREW +B 2X4	
#6	7-621-255-65	SCREW +P 2X10	
#7	7-627-553-28	SCREW, PRECISION +P 2X2.5	
#8	7-621-255-25	SCREW +P 2X4	
#9	7-624-102-04	STOP RING 1.5, TYPE -E	
#10	7-624-105-04	STOP RING 2.3, TYPE -E	
#11	7-628-253-20	SCREW +PS 2X6	
#12	7-628-253-00	+PSW 2X4	
#13	7-627-553-48	SCREW, PRECISION +P 2X4	
#14	7-621-255-50	SCREW +P 2X8	
#15	7-624-106-04	STOP RING 3.0, TYPE -E	
#16	7-627-553-68	SCREW (+-M2X6), SPECIAL	
#17	7-621-255-15	SCREW +PTT 2X3 (S)	
#18	7-682-547-04	SCREW +B 3X6	
#19	7-621-772-00	SCREW +B 2X3	
#20	7-671-154-01	STEEL, BALL	
#21	7-627-853-57	PRECISION SCREW +P 2X5 TYPE3	
#22	7-622-207-05	N 2.6, TYPE 2	
#23	7-628-254-20	SCREW +PS 2.6X8	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7
MECHANICAL ADJUSTMENT

7-1. PERIODIC CHECK AND MAINTENACE

It is recommended that the following periodic check and maintenance schedule are employed in order to obtain maximum performance of the unit and longer tape life.

7-1-1. MAINTENANCE AFTER REPAIRS

Perform the following maintenance after repair regardless the operating hours of the unit.

(1) Cleaning of the Rotary Upper Drum

- Press the cleaning piece moistend with cleaning fluid lightly against the Rotary Upper Drum and turn slowly the Upper Drum counterclockwise with a hand.

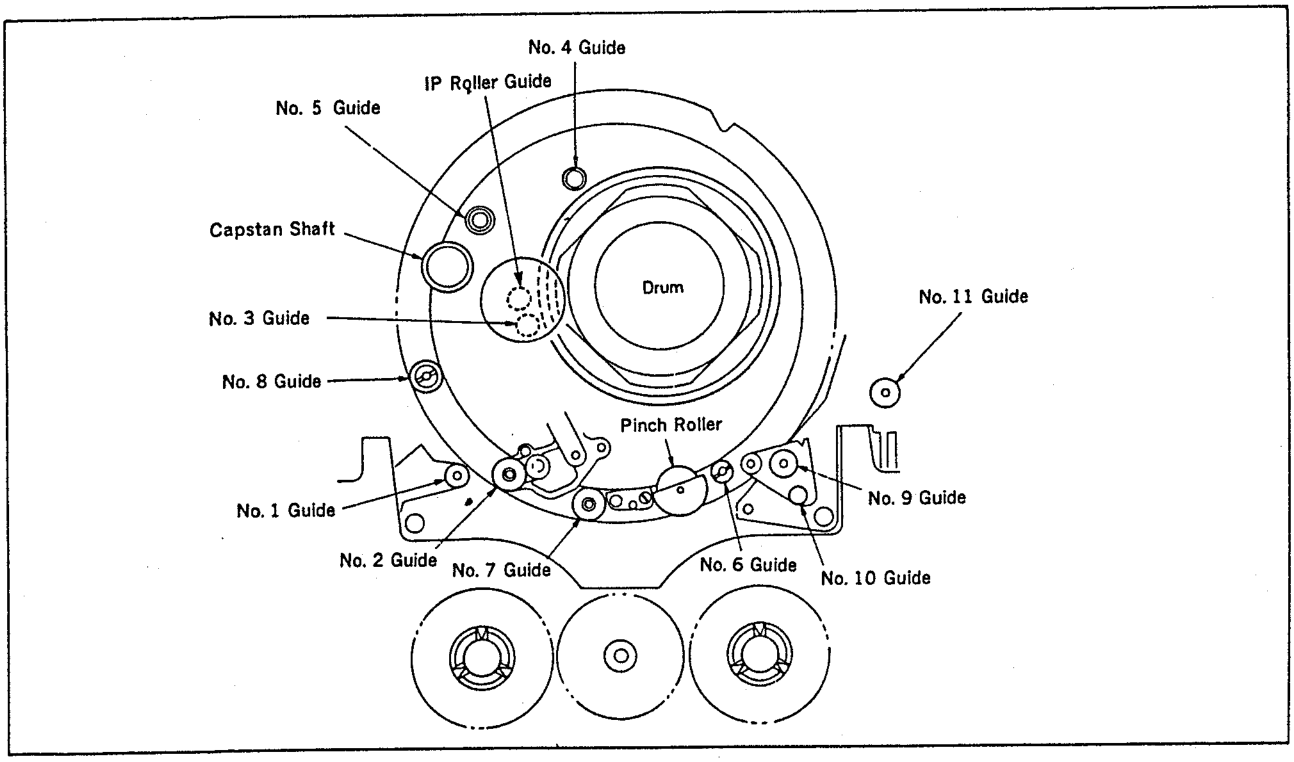
  Note: Never turn the Upper Drum by the electric power and never turn the Upper Drum clockwise with a hand. Never move the cleaning piece in the veritical direction of head tips in the cleaning. It tends to damage the video head tips. Please follow the instruction above for cleaning.

2) Cleaning of Tape Running System (fig.1)

- Put the cassette compartment into the EJECT completion mode and clean the tape running system (No.1 thru No.11 Guides, Capstan Shaft, Pinch Rolloer and IP Roller Guide) with cleaning piece moistend with the clearning the fluid.

(3) Cleaning of Drive System

- Clean the Drive system (reel table surface, belt and timing belt) with cleaning piece moistend with the cleaning fluid.


No. 4 Guide
IP Roller Guide
No. 5 Guide
Capstan Shaft
Drum
No. 11 Guide
No. 3 Guide
No. 8 Guide
Pinch Roller
No. 9 Guide
No. 1 Guide
No. 2 Guide
No. 7 Guide
No. 6 Guide
No. 10 Guide

7-1-2. PERIODIC CHECK

Perform the maintenance and periodic checks described below in accordance with the operational hour of the unit.

○: Cleaning ◆: Replacement ◇: Checking ■: Oiling

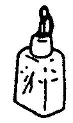
Location			Hours of Use (H) : MENU No. (Drum rotation)										Reference Section
	Parts Name	Parts No.	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Path	Tape Path surface	–	○	○	○	○	○	○	○	○	○	○	7-1-1
	Upper Drum Ass'y (DGR-0AO-R)	A-7049-588-A	○	◇	○	◇	○	◇	○	◇	○	◇	7-2-3
	Drum Ass'y (DGH-0A0A-R)	A-7048-650-A	○	◇	○	◇	○	◇	○	◇	○	◇	7-2-4
	Pinch Roller Arm Ass'y	X-3686-576-1	○	○	○	○	○	○	○	○	○	○	7-2-6
	(Note 4:) Capstan shaft bearing	8-835-364-01	–	■	–	■	–	■	–	■	–	■	——
Drive System	Threading motor belt	3-686-546-01	○	○	○	○	○	○	○	◆	○	○	7-2-8
	Brake plunger	1-454-377-21	–	–	–	○	–	–	–	○	–	–	7-2-21
	Loading motor	A-7040-065-A	–	◇	–	◇	–	◇	–	◇	–	◇	7-2-8
	Control motor	8-835-138-01	–	◇	–	◇	–	◇	–	◇	–	◇	7-2-22
	Reel motor	8-835-304-11	–	◇	–	◇	–	◇	–	◇	–	◇	7-2-9
	T Reel Table Ass'y	X-3711-998-1	○	○	○	○	○	○	○	○	○	○	7-2-15
	S Reel Table Ass'y	X-3713-427-1	○	○	○	○	○	○	○	○	○	○	7-2-14
	T•Main Brake Ass'y	X-3686-574-1	–	◇	–	◇	–	◇	–	◇	–	◇	——
	S•Main Brake Ass'y	X-3713-429-1	–	◇	–	◇	–	◇	–	◇	–	◇	——
	T•S Brake Ass'y	X-3711-987-2	–	◇	–	◇	–	◇	–	◇	–	◇	——
	REW Brake Ass'y	X-3711-993-1	–	◇	–	◇	–	◇	–	◇	–	◇	——
	Tension Regulator Band Ass'y	X-3686-531-1	–	◇	–	◇	–	◇	–	◇	–	◇	7-2-17
	Roller (Cassette-up Compartment)	3-713-466-01	–	–	–	–	–	○	–	–	–	–	——
Performance Check	Abnormal-noise	–	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	——
	FWD Back tension measurement	–	–	◇	–	◇	–	◇	–	◇	–	◇	7-3-5
	Brake torque measurement	–	–	◇	–	◇	–	◇	–	◇	–	◇	7-3-1 to 7-3-3
	FWD, RVS torque measurement	–	–	◇	–	◇	–	◇	–	◇	–	◇	7-3-4

Note 1: When overhauling the unit, refer to the items above for replacement of parts.
Note 2: The time of parts replacement will differ with operating environment
Note 3: Be sure to clean the tape path surface in repairing.
Note 4: Oiling to the Capstan Shaft Bearing.
Apply one-half drop of oil to the Capstan Shaft Bearing.
(Never apply oil to the tape path surface.)

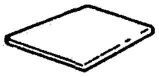
7-1-3. SERVICING TOOLS

Ref. No.	Parts No.	Description	Application
J-1	Y-2031-001-1	Cleaning Fluid	Cleaning
J-2	7-741-900-53	Wiping Cloth	Cleaning
J-3	Commercially sold	Head Degausser	Head degauss
J-4	J-6080-840-A	Small Adjustment Mirror	Tape path adjustment
J-5	8-967-995-07	Alignment Tape, WR5-1CP	Tape path adjustment
	8-967-995-18	Alignment Tape, WR5-7CE	Video frequency response adjustment
	8-967-995-47	Alignment Tape, WR5-5CSP	Video adjustment
	8-967-995-48	Alignment Tape, WR5-8CSE	Serve, audio and video adjustment (SP)
	8-967-995-57	Alignment Tape, WR5-8CLE	Servo, audio and video adjustment (LP)
J-6	J-6080-827-A	Dial Tension Gauge	Measurement of torque
J-7	J-6080-831-A	Tension Measurement Reel	FWD Back tension adjustment
J-8	J-6080-832-A	Tension Measurement Reel	Brake torque check
J-9	J-6080-823-A	No. 10 Gear Phase Tool	Threading ring assembly replacemnt
J-10	J-6080-826-A	No. 6 Guide Lock Screwdriver	Tape path adjustment
J-11	———	Rotary Drum Tool (packed with the Rotary Upper Drum for repair)	Rotary upper drum replacement
J-12	J-6080-824-A	FWD, RVS Winding Torque Cassette	S•T reel table winding torque check
J-13	J-6080-825-A	Mode Selector	Mechanical check, adjustment and replacement
J-14	J-6080-891-A	Track Shift Tool	Tape path adjustment
J-15	J-6080-883-A	RE/SWP Connector	Tape path adjustment
J-16	J-6080-884-A	CTL Connector	Tape path adjustment
J-17	7-700-766-01	Hexagonal Screwdriver (0.89 mm)	Tape path adjustment

J-1



J-2



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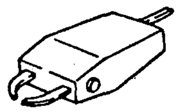
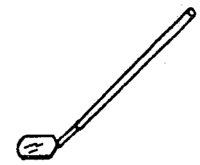


J-4



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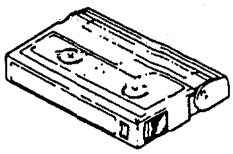
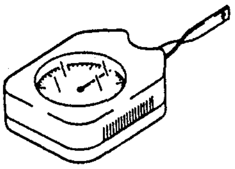
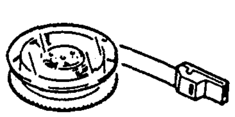


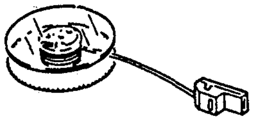
J-6



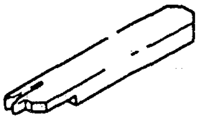
J-7



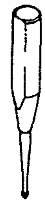
J-8



J-9

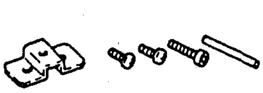


J-10

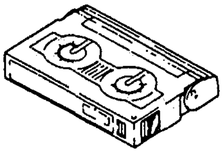


J-11

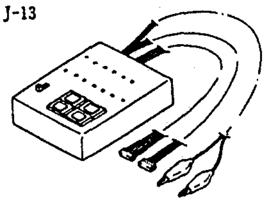
(Packed with the rotary upper drum for repair)



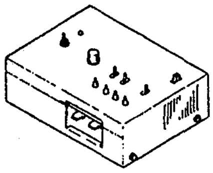
J-12



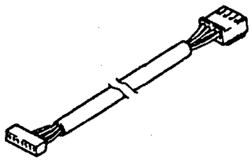
J-13



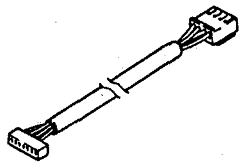
J-14



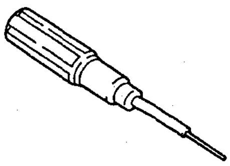
J-15



J-16



J-17



7-1-4. HOW TO USE THE CLEANING TAPE

Cleaning Tape: V8-25CLH (separately available)

. Never use the cleaning tape, V8-25CLN.

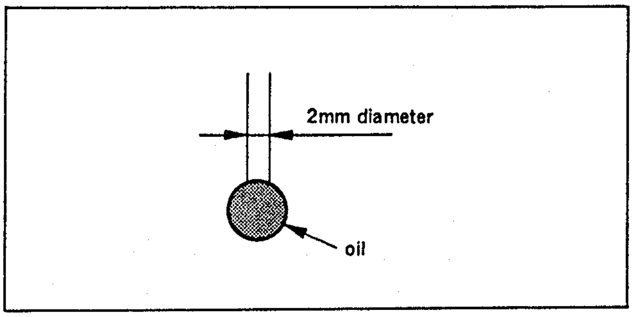
(1) When the rotary heads clog and head cleaning descrived Section 7-1 can not clean the heads, use the cleaning tape.
If use the cleaning tape except for the above, it will shorten the life of the heads.

(2) The one time cleaning is within fifteen seconds and never reuse the cleaning tape after rewinding.

7-1-5. OTHERS

(1) Sony oil

- Be sure to use the Sony oil as the lubrication oil. (If other oil is useed, various troubles due to different viscosity tends to be caused.)
  Sony oil: Part No. 7-661-018-18
- Use the Sony oil in which dust or other foreign material have not mixed for lubricating the bearing. (If foreign material is in the oil, wear or burning of the bearing tends to be caused.)
- One drop of oil means the amount which sticks to a 2 mm diameter rod, as shown in the figure.



(2) Sony grease

- Be sure to use the Sony grease as the lubrication grease.
  Sony grease: Part No. 7-662-001-62
  (SGL-501)

(3) MOLYTONE GREASE

- Be sure to use the MOLYTONE GREASE as the lubrication grease.
  MOLYTONE GREASE: Part No. 7-662-001-41
  (No. 320)

7-2. REPLACEMENT OF MAJOR PARTS

PREPARATION FOR REPLACEMENT OF PARTS

Replacement of some parts use the *Mode Selector. The mode (☐ marked mode) in the replacement procudure is set by pressing the button on the Mode Selector.

*It is a kind of tool.
Part No. : J-6080-825-A

- **Operation of Mode selector**

1. Location of parts and controls (fig. 1)
2. Connection (fig. 2)

(1) Remove the Front Panel, Top Plate and Bottom Plate referring to Section 2-1.

(2) Remove the Mecha Deck Block from the unit referring to Section 2–6.

(3) Remove the MB–19, MD–23, HK–5 and SE-10 Boards from the unit referring to Sections 2–10, 2–11 and 2–12.

(4) Disconnect the connectors (6P) on the MS-4 and LS-9 Boards.

(5) Connect the 6P connector (six harness, white) for the M-switch of the Mode Selector to the MS-4 Board.

(6) Connect the 6P connector (four harness, black) for the L-switch of the Mode Selector to the LS-9 Board.

(7) Remove the cover of the Threading Motor.

(8) Connect the red clip of the Threading Motor driver lead to the red terminal of the Threading Motor and the black clip to the brown terminal.

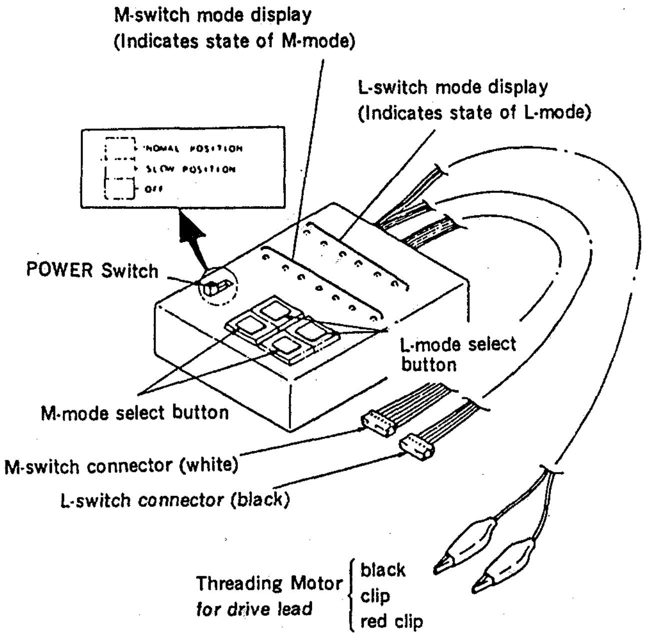

M-switch mode display
(Indicates state of M-mode)
L-switch mode display
(Indicates state of L-mode)
NOMAL POSITION
SLOW POSITION
OFF
POWER Switch
L-mode select button
M-mode select button
M-switch connector (white)
L-switch connector (black)
Threading Motor for drive lead
black clip
red clip

Fig. 1

3. Note

(1) When operating L-switch, be sure to set the mode of M-switch to LOADING/UNLOADING mode.

(2) When operating M-switch, be sure to set the mode of L-switch to LOADING TOP or LOADING END mode.

4. Operation

When L-mode or M-mode does not set in each mode during mode selection, the BLANK position lights up.

(1) L-mode

. When the right side L-mode select button is pressed continuously, the mode changes from LOADING TOP to LOADING END in order from left.

. When the mode changes from LOADING END to LOADING TOP in order, press the left side L-mode select button cotinuously.

. When the power switch is set to the SLOW position, the L-mode operates more slowly than the NORMAL position.

(2) M-mode

. When performing EJECT, set the mode of L-switch to LOADING TOP.

. When performing from FF/REW to RVS or from RVS to FF/REW, set the mode of L-switch to LOADING END.

. When the right side M-mode select button is pressed continuously, the mode changes from EJECT to RVS in order from left.

. When the mode changes from RVS to EJECT, press the left side M-mode select button continuously.

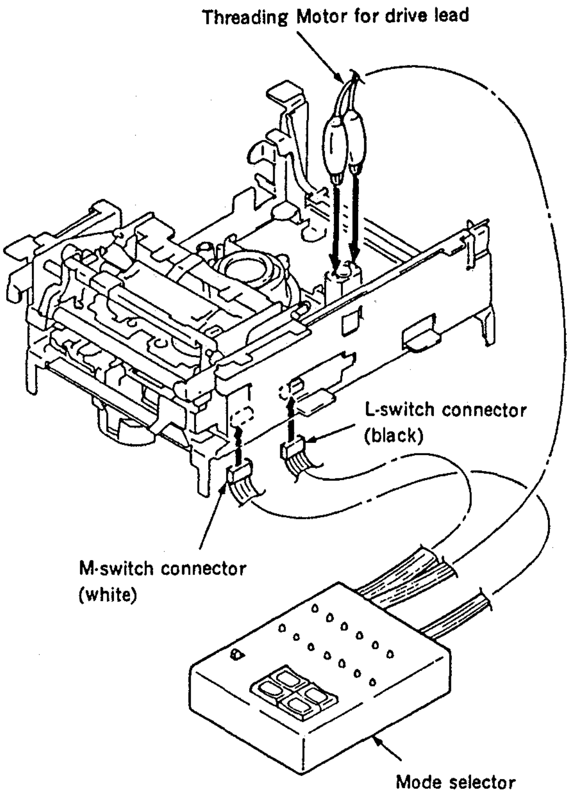


Fig. 2

7-2-1. REPLACEMENT OF THE CLEANING ROLLER ASSEMBLY

Removal :

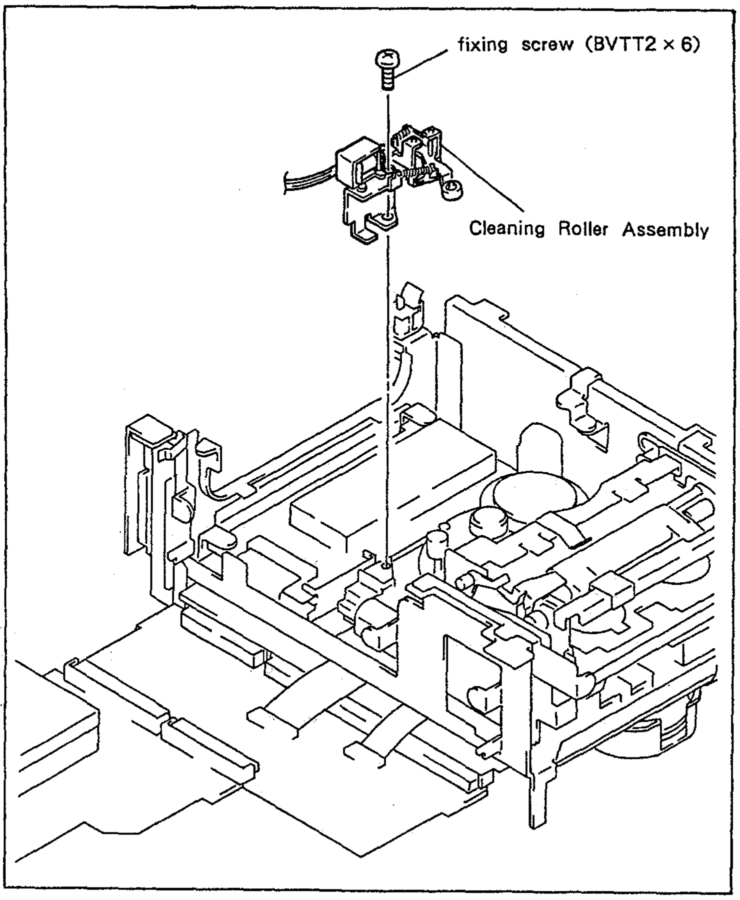
(1) Open the MB-19 Board referring to Section 2-10.

(2) Remove the fixing screw and remove the Cleaning Roller Assembly.

Installation :

(1) Replace the Cleaning Roller Assembly with a new one and assemble the parts with Removal Steps (1) to (2) in reverse order.

Note : Hereafter, perform the parts replacement and adjustment of the mechanical block with Cleaning Roller Assembly removed.



7–2–2. REPLACEMENT OF THE FLY WHEEL

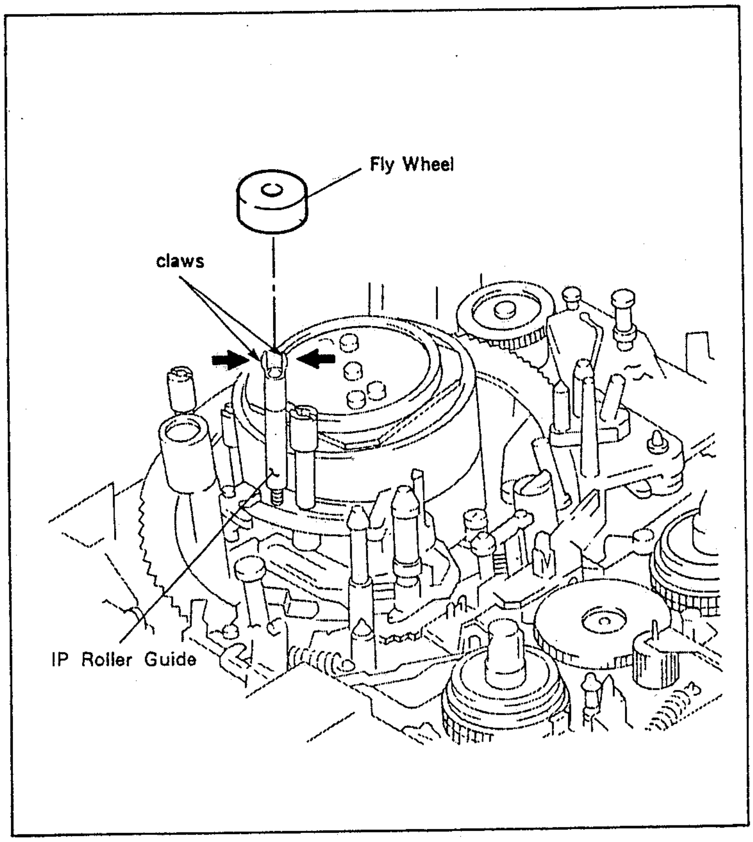
Removal:

(1) Open the MB-19 Board referring to Section 2–10.

(2) Remove the Fly Wheel while picking the claws.

Installation:

(1) Replace the Fly Wheel with a new one. Insert the Fly Wheel in the IP Roller Guide from the big hole side until click sound can be heard.


Fly Wheel
claws
IP Roller Guide

7-2-3. REPLACEMENT OF THE ROTARY UPPER DRUM

- The video heads can not be replaced as a single parts. Replace the whole Rotary Upper Drum Assembly.
- There is a relay PC Board (DH-6 Board) for the video and audio signals in the Rotary Upper Drum. It is not necessary to replace the DH-6 Board, if it is broken, replace the whole the Rotary Upper Drum Assembly.

Tools: Rotary Drum Tool (Ref No. J-11)
(It is packed together with the Repair Rotary Upper Drum.)
L-shaped wrench
(across flat has 1.5 mm)

Removal:

(1) Open the MB-19 Board referring to Section 2–10.

(2) Remove the Fly Wheel reffering to Section 7–2–2.

(3) Remove the two screws (M2 X 2.7) and remove the Dynamic Damper.

(4) Unsolder the ten terminals at A positions. Check that the terminals which are projected out from the PC Board move freely with a pair of tweezers, etc. (fig. 1)

(5) Remove the two screws (P2 X 5).

(6) Install the tool A to the two screw holes of installing the Dynamic Damper with the two accessory supplied screws. Thread the accessory supplied hexagon screw into the center hole of the tool A, and remove the Rotary Upper Drum. (fig. 2)

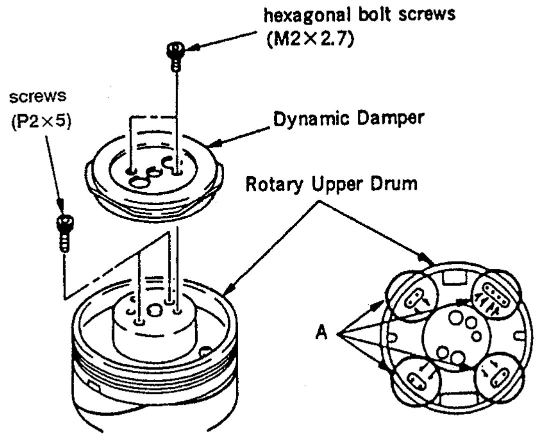

hexagonal bolt screws
(M2×2.7)
screws
(P2×5)
Dynamic Damper
Rotary Upper Drum
A

Fig. 1

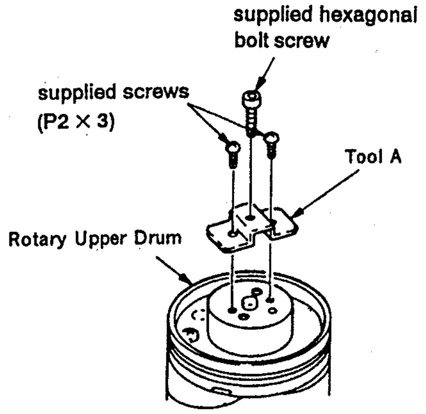

supplied hexagonal
bolt screw
supplied screws
(P2 × 3)
Tool A
Rotary Upper Drum

Fig. 2

Installation:

(1) Clean the flange surface of the Lower Drum and the contact point of the new Rotary Upper Drum with a cleaning piece. Check that no dust or flaw are left.

(2) While adjusting the positional relationship of the Rotary Upper Drum and positioning hole with the tool B, insert the Rotary Upper Drum lightly. At this time, Check that the terminals project out from the PC Board of the Rotary Upper Drum. When the terminals are caught, correct them with a pair of tweezers, etc.. Remove the tool B and lightly push the Rotary Upper Drum by hand. If the Rotary Upper Drum does not down to the botom, thread the two fixing screws to the Rotary Upper Drum alternately, but do not tighten them. Insert the tool B in the positioning hole and check that the tool B can be inserted smoothly again. If the tool B can not be inserted, loosen the two screws (P2 X 5) and adjust the position of the Rotary Upper Drum by precision screwdriver. (fig. 3 and 4)

(3) Tighten the two screws (P2 X 5).

(4) Assemble the parts with Removal Steps (1) to (4) in reverse order.

Note: . Do not tighten all the screws too strongly.

. Be carefull not to flow solder below the PC Board.

After replacement, perform the Tape Path Adjustment referring to Section 7-4.

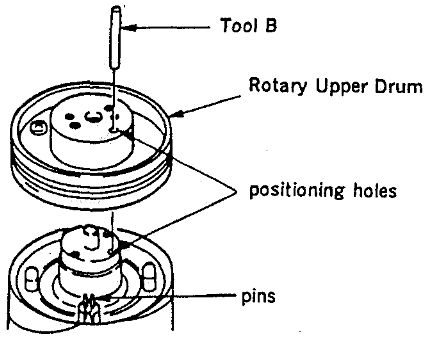


Fig. 3

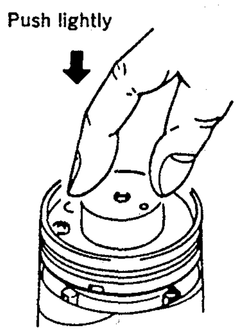


Fig. 4

7–2–4. REPLACEMENT OF THE DRUM ASSEMBLY

Removal:

(1) Open the MB-19 Board referring to Section 2–10.

(2) Remove the Cassette-up Compartment Assembly referring to Section 2–15.

(3) Remove the Fly Wheel referring to Section 7–2–2.

(4) Open the HK–5 and SE–10 Boards referring to Sections 2–11 and 2–12.

(5) Remove the two fixing screws and remove the Flexible Cover. (fig. 1)

(6) Disconnect the connectors (CN805, 806) on the MD–23 Board and disconnect the connector (CN001) on the FR–43 Board.

(7) Remove the fixing screw and remove the Shaft Ground Terminal.

(8) Remove the two fixing screws and remove the Drum Assembly. (fig. 2)

Note: At this time, be careful that the Drum Assembly does not touch the No. 3 Guide and the IP Roller Guide, etc..

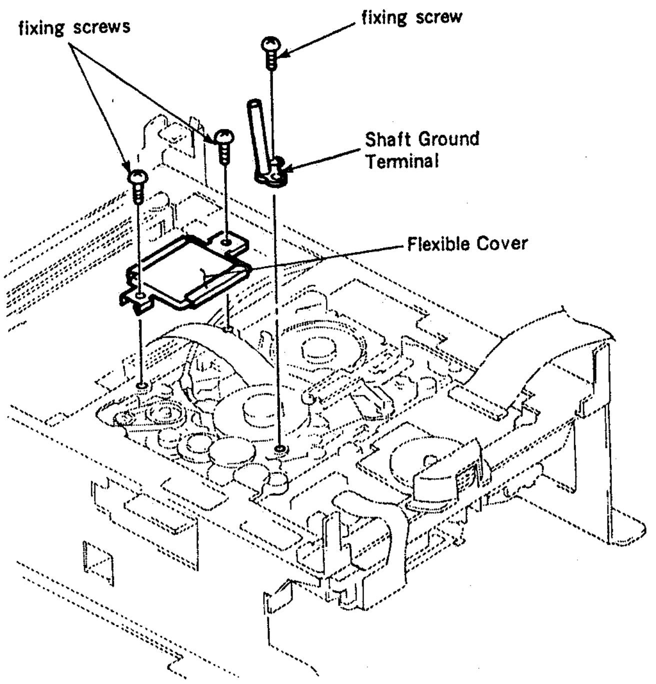

fixing screws
fixing screw
Shaft Ground Terminal
Flexible Cover

Fig. 1

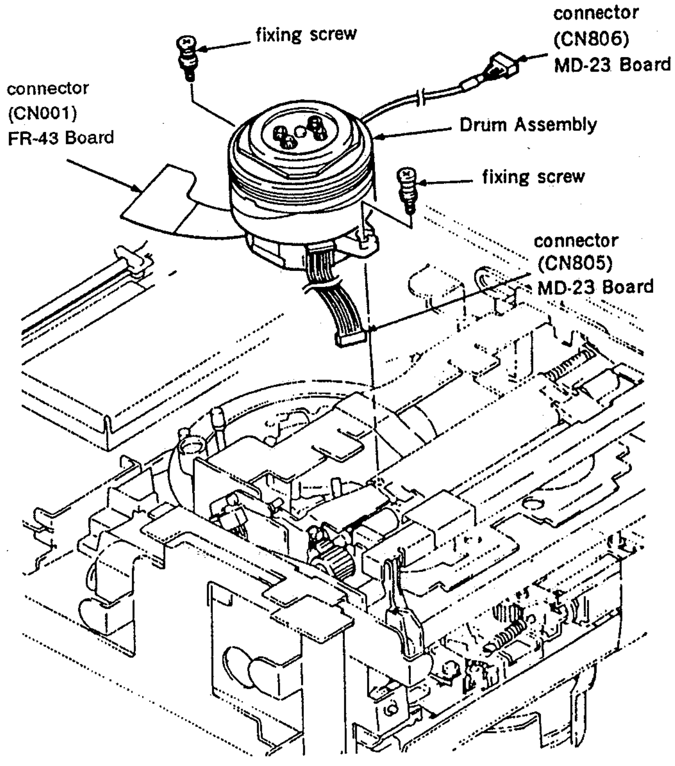

fixing screw
connector (CN806) MD-23 Board
connector (CN001) FR-43 Board
Drum Assembly
fixing screw
connector (CN805) MD-23 Board

Fig. 2

Installation:

1. (1) Clean the flange surface of the new Drum Assembly and the contact point of the mechanical chassis with a cleaning piece.
2. (2) Set the Drum Assembly to the two projections of the Mecha chassis and tighten the two fixing screws.

   Note: At this time, be careful that the screwdriver does not touch the head chips. (fig. 3)
3. (3) Peel off the tape from the Rotor and FG Stator of the Drum Assembly.
4. (4) Clean the shaft of the Drum Assembly with a cleaning piece.
5. (5) Clean the Shaft Ground Terminal which contact to the Drum Shaft with a cleaning piece and set the Shaft Ground Terminal to the projection of mechanical chassis and tighten the fixing screw.
6. (6) Assemble the parts with Removal Steps (1) to (6) in reverse order.

After replacement, perform the Tape Path Adjustment referring to Section 7-4.

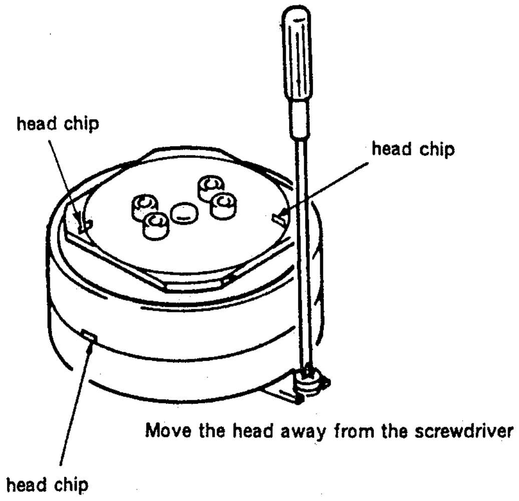


Fig. 3

7-2-5. REPLACEMENT OF THE THREADING RING ASSEMBLY

Tools: Mode Selector (Ref. No. J-13)
No. 10 Gear Phase Tool
(Ref. No. J-9)
Sony Oil

Removal:

(1) Remove the Cassette-up Compartment Assembly referring to Section 2-15.

(2) Press the L-mode select button of the Mode Selector and move the Guide Base Assembly and the No. 2 Guide Assembly until just before it is locked. (Do not move the Threading Ring Assembly.)

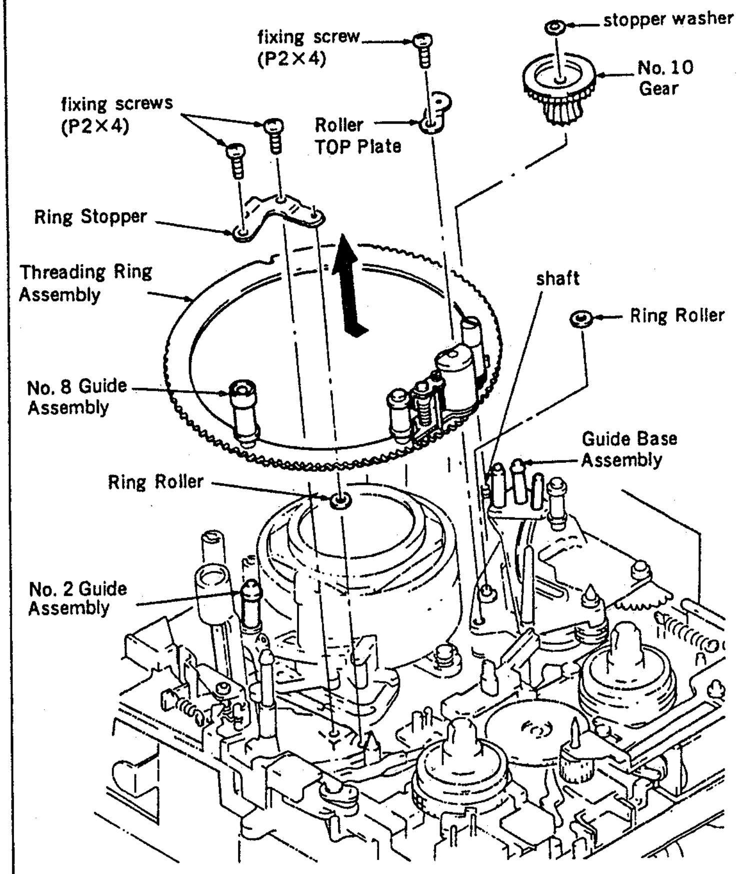
(3) Remove the stopper washer and remove the No. 10 Gear Assembly.

(4) Remove the fixing screw and remove the Roller Top Plate and Ring Roller.

(5) Remove the two fixing screws and remove the Ring Stopper and Ring Roller.

(6) Remove the Threading Ring Assembly in the direction of the arrow.

Note: When removing the Threading Ring Assembly, be careful that the Threading Ring Assembly does not touch the Drum and Capstan Shaft.


stopper washer
fixing screw
(P2×4)
No. 10
Gear
fixing screws
(P2×4)
Roller
TOP Plate
Ring Stopper
Threading Ring
Assembly
shaft
Ring Roller
No. 8 Guide
Assembly
Guide Base
Assembly
Ring Roller
No. 2 Guide
Assembly

Installation:

(1) Replace the Threading Ring Assembly with a new one.

(2) Install the Threading Ring Assembly so that it puts into the unthreading mode. The Pinch Roller Arm Assembly is the Reel Table side. (Check that each assembly is put into the Step (2) at removal procedure.)

(3) Install the Ring Roller and Ring Stopper and tighten them with two fixing screws. (Check that the No. 8 Guide Assembly is in front of Ring Stopper.)

(4) Install the Ring Roller and Roller Top Plate and tighten them with the screw. (Check that the Threading Ring Assembly matches the three Ring Rollers.)

(5) Apply a half drop of oil on the shaft.

(6) Check that the pin of the Drive Changer Assembly is into the notch of the L-switch Assembly. Insert the No. 10 Gear Phase Tool (Ref. No. J-9) into the notch of the L-SW Assembly.

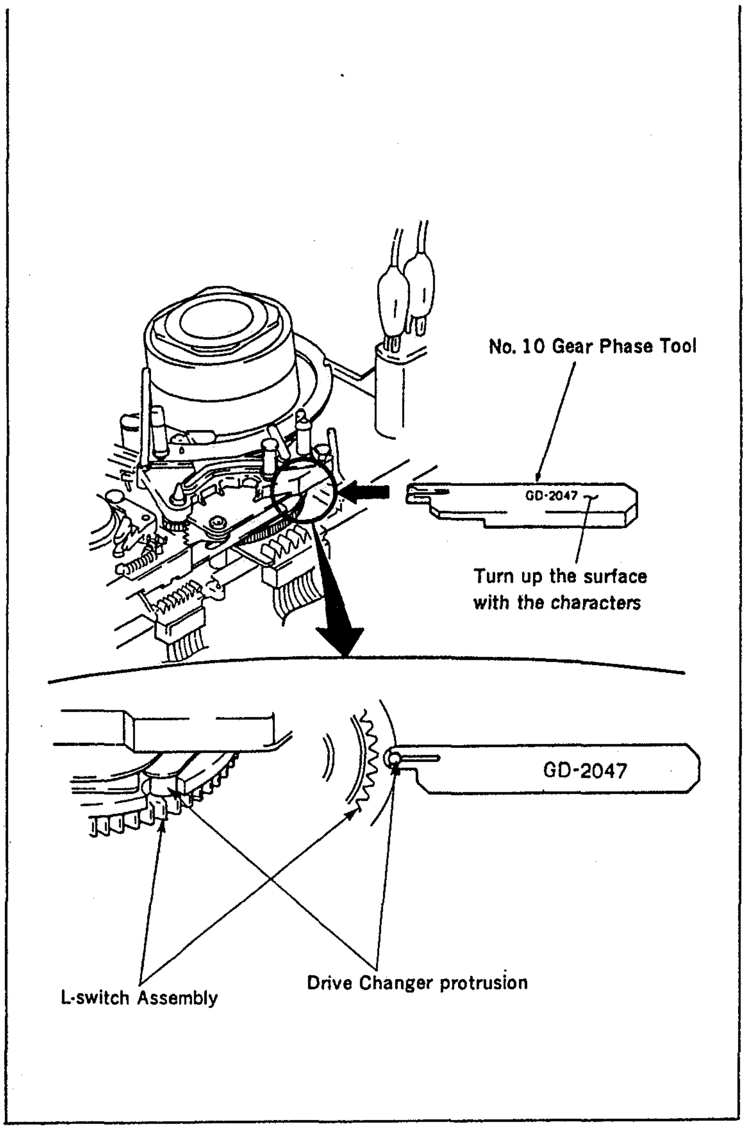
(7) While pushing the No. 8 Guide Assembly against the Ring Stopper, install the No.10 Gear Assembly with a stopper washer.

(8) Pull out the No. 10 Gear Phase Tool.

(9) Press the L-mode select button of the Mode Selector and set to the LOADING TOP mode.

(10) Install the Cassette-up Compartment Assembly referring to Section 2-15.

After replacement, perform the Tape Path Adjustment referring to Section 7-4.



7–2–6. REPLACEMENT OF THE PINCH ROLLER ARM ASSEMBLY

Removal:

(1) Open the MB-19 Board referring to Section 2–10.

(2) Remove the Cassette-up Compartment Assembly referring to Section 2–15.

(3) Remove the stopper washer. (fig. 1)

(4) Hook the spring which is hooked to the No. 7 Guide Assembly to the groove of the Pinch Roller Arm (fig. 2)

(5) Turn the Pinch Roller Arm Assembly in the direction of the arrow. (fig. 3)

(6) Remove the Pinch Roller Arm Assembly in the direction of the arrow. (fig. 4)

(7) Remove the spring. (fig. 5)

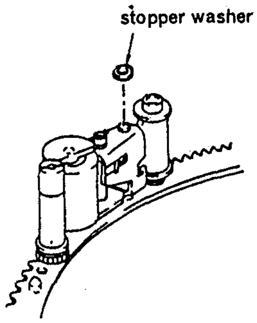

stopper washer

Fig. 1

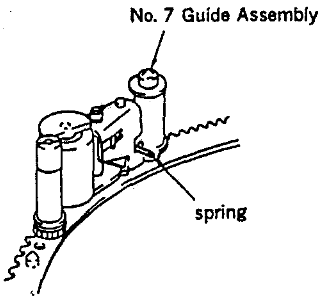

No. 7 Guide Assembly
spring

Fig. 2

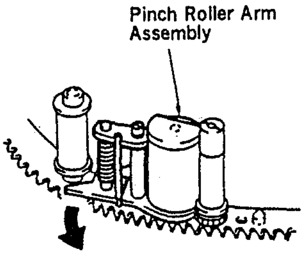

Pinch Roller Arm Assembly

Fig. 3

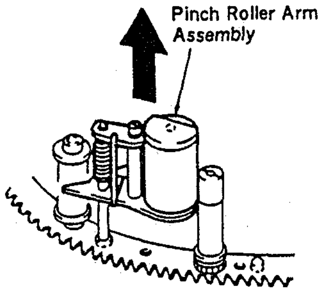

Pinch Roller Arm Assembly

Fig. 4

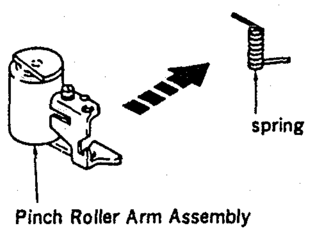

spring
Pinch Roller Arm Assembly

Fig. 5

Installation:

(1) Replace the Pinch Roller Arm Assembly with a new one.

(2) Install the spring and hook the ends of the spring to the Pinch Roller Arm Assembly. (fig. 1)

(3) Insert the end of the clip or another thin rod into the hole of the Pinch Roller Arm Assembly. (fig. 2 and 3)

(4) Put the end of the clip to the shaft of the Threading Ring Assembly and install the Pinch Roller Assembly. (fig. 4 and 5)

(5) Hook the end of the spring to the No. 7 Guide Assembly.
At this time, check that the another end of the spring is hooked to "A". (fig. 6)

(6) Assemble the parts with Removal Steps (1) to (3) in reverse order.

After replacement, perform the Tape Path Check referring to Section 7-4-6.

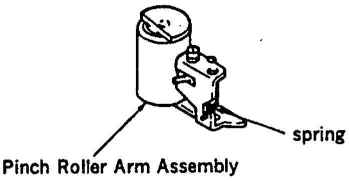

spring
Pinch Roller Arm Assembly

Fig. 1

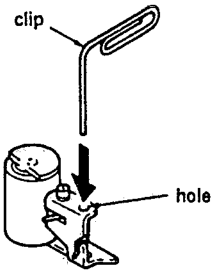


Fig. 2

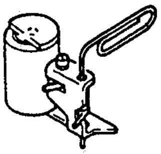


Fig. 3

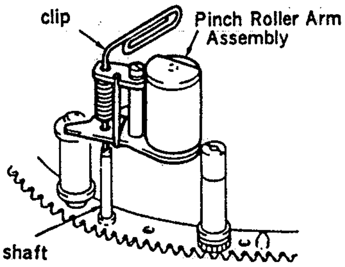

clip
Pinch Roller Arm Assembly
shaft

Fig. 4

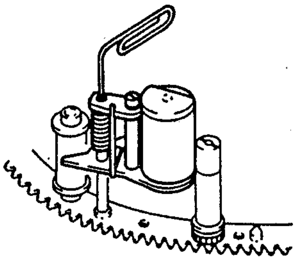


Fig. 5

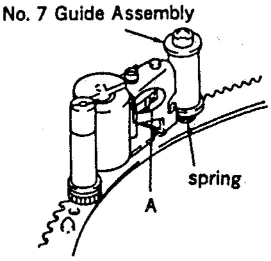

No. 7 Guide Assembly
spring
A

Fig. 6

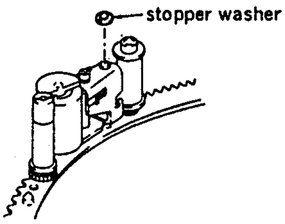

stopper washer

Fig. 7

7–2–7. REPLACEMENT OF THE CAPSTAN MOTOR

Removal:

(1) Open the MB-19 Board referring to Section 2–10.

(2) Remove the Cassette-up Compartment Assembly referring to Section 2–15.

(3) Remove the Threading Ring Assembly referring to Section 7–2–5.

(4) Open the HK–5 and SE–10 Boards referring to Sections 2–11 and 2–12.

(5) Remove the two fixing screws and remove the Flexible Cover.

(6) Remove the harness of the Capstan Motor from the Wire Holder.

(7) Remove the fixing screw and remove the Wire Holder.

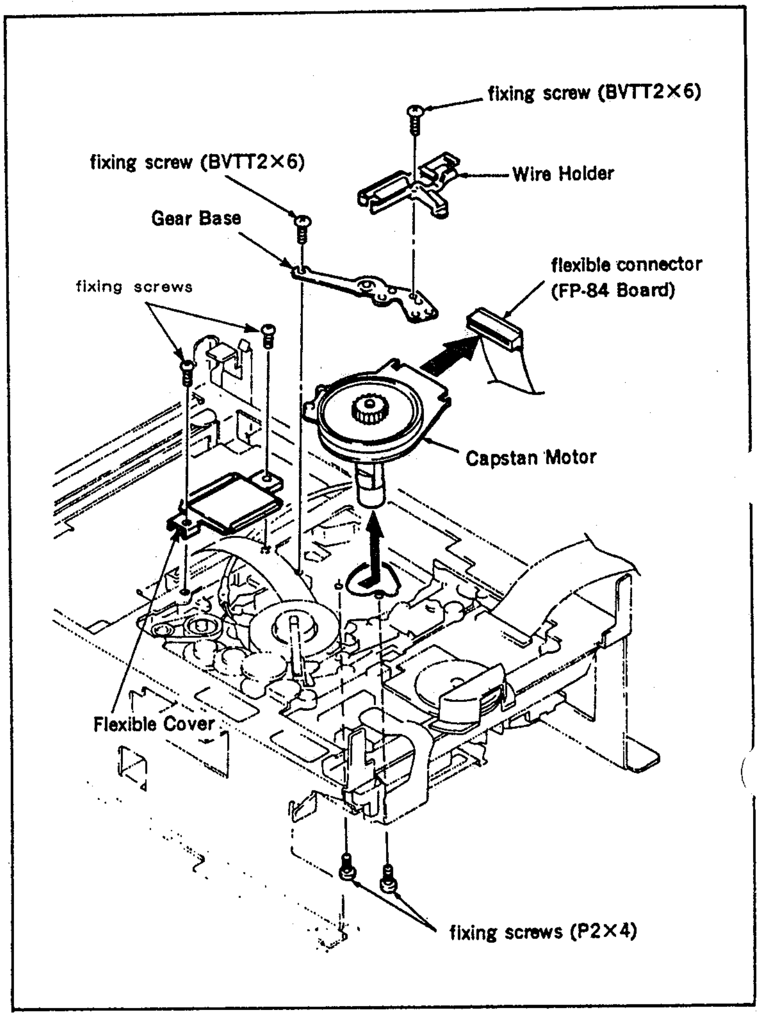
(8) Remove the fixing screw and remove the Gear Base.

(9) Disconnect the flexible connector of the Capstan Motor.

(10) Remove the two fixing screws and remove the Capstan Motor in the direction of the arrow.

Installation:

(1) Replace the Capstan Motor with a new one and assemble the parts with Removal Steps (1) to (10) in reverse order.


fixing screw (BVTT2×6)
Wire Holder
fixing screw (BVTT2×6)
Gear Base
fixing screws
flexible connector
(FP-84 Board)
Capstan Motor
Flexible Cover
fixing screws (P2×4)

7-2-8. REPLACEMENT OF THE LOADING MOTOR ASSEMBLY

Removal:

(1) Open the MB-19 Board referring to Section 2-10.

(2) Open the HK-5 and SE-10 Boards referring to Sections 2-11 and 2-12.

(3) Remove the L Motor Belt.

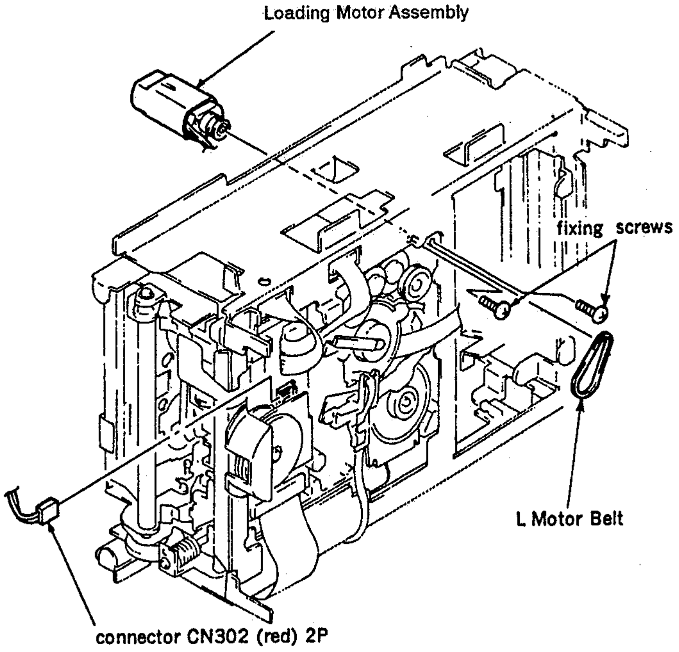
(4) Disconnect the connector (CN302) on the RS-31 Board.

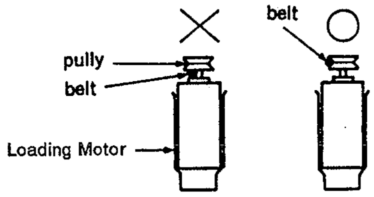
(5) Remove the two fixing screws and remove the Loading Motor Assembly.

Installation :

(1) Replace the Loading Motor Assembly with a new one and assemble the parts with Removal Steps (1) to (5) in reverse order.

Note: Before installing the L Motor Belt, clean it with a cleaning piece and be sure to install the belt in the groove of pulley.


Loading Motor Assembly
fixing screws
L Motor Belt
connector CN302 (red) 2P


×
belt
○
pully
belt
Loading Motor

7-2-9. REPLACEMENT OF THE REEL MOTOR

Removal:

(1) Open the HK-5 and SE-10 Boards referring to Sections 2-11 and 2-12.

(2) Remove the FP-122 Flexible Board from the PC Board of the Reel Motor.

(3) Remove the FP-206 Flexible Board from the RS-31 Board.

(4) Remove the two fixing screws of the Motor Bracket.

(5) Insert a flatblade screwdriver into A, release the projection B and remove the Motor Bracket.

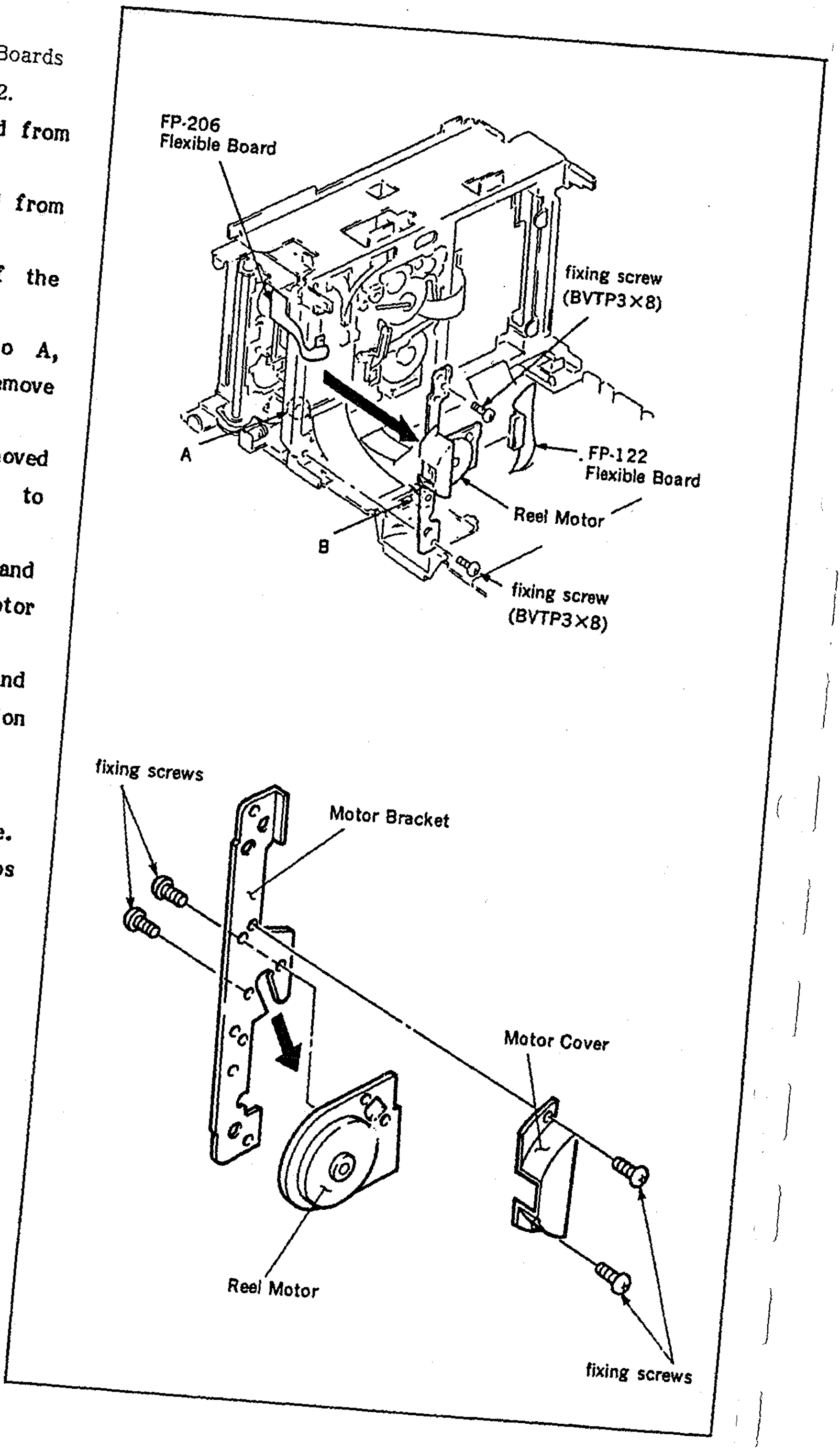
Note: If the Motor Bracket is removed by hand directly, it tends to damage the Motor Bracket.

(6) Remove the two fixing screws and remove the Motor Cover from the Motor Bracket.

(7) Remove the two fixing screws and remove the Reel Motor in the direction of the arrow.

Installation:

(1) Replace the Reel Motor with a new one. Assemble the parts with Removal Steps (1) to (7) in reverse order.


FP-206
Flexible Board
fixing screw
(BVTP3×8)
A
FP-122
Flexible Board
Reel Motor
B
fixing screw
(BVTP3×8)
fixing screws
Motor Bracket
Motor Cover
Reel Motor
fixing screws

7-2-10. REPLACEMENT OF THE No. 3 and No. 4 GUIDES

Removal:

(1) Open the MB-19 Board referring to Section 2-10.

(2) When replacing the No. 3 Guide, remove the Fly Wheel referring to Section 7-2-2.

(3) Turn the Rotary Upper Drum counterclockwise and keep heads away from the No. 3 Guide or No. 4 Guide.

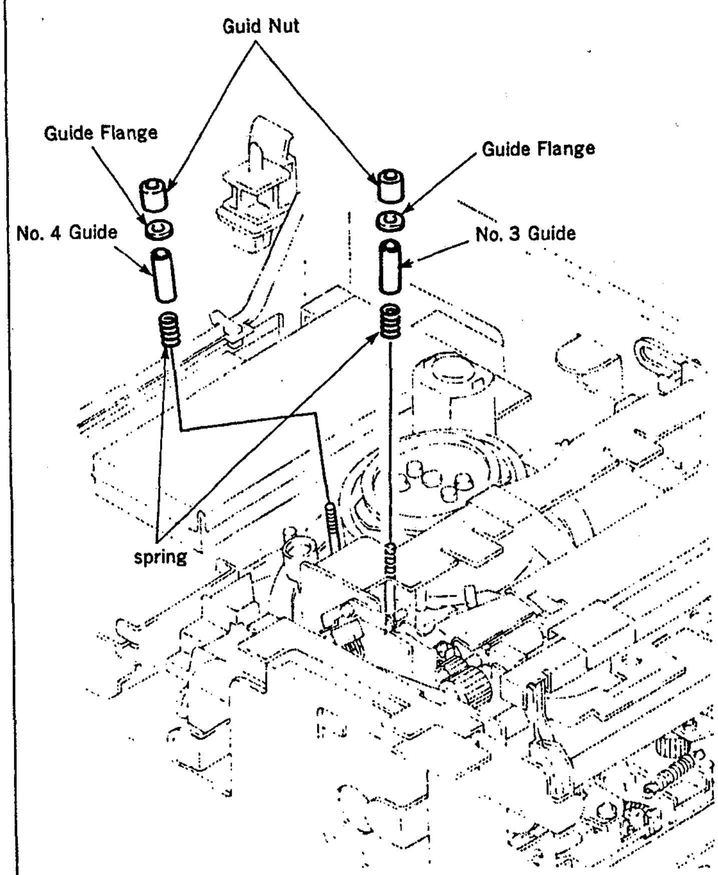
(4) Remove the Guide Nut and remove the Guide Flange, No. 3 Guide (or No. 4 Guide) and spring.

Installation:

(1) Replace the No. 3 Guide (or No. 4 Guide) with a new one.

(2) Assemble the parts with Removal Steps (1) to (4) in reverse order.

After replacement, adjust the height of the No. 3 and No. 4 Guides to meet the tape path condition of Section 7-4-6-3 by turning the Guide Nut.



7-2-11. REPLACEMENT OF THE ENTRANCE GUIDE (P) ASSEMBLY (No. 2 GUIDE ASSEMBLY)

Removal:

(1) Open the MB-19 Board referring to Section 2-10.

(2) Remove the Cassette-up Compartment Assembly referring to Section 2-15.

(3) Remove the Fly Wheel referring to Section 7-2-2.

(4) Turn the Rotary Upper Drum counterclockwise and keep heads away from the Entrance Guide (P) Assembly.

(5) Remove the Guide Nut and remove the Guide Flange, No. 3 Guide and spring.

(6) Remove the two fixing screws and remove the Entrance Guide (P) Assembly.

Installation:

(1) Check that the mechanical block is put into the LOADING TOP mode.

(2) Replace the Entrance Guide (P) Assembly with a new one.

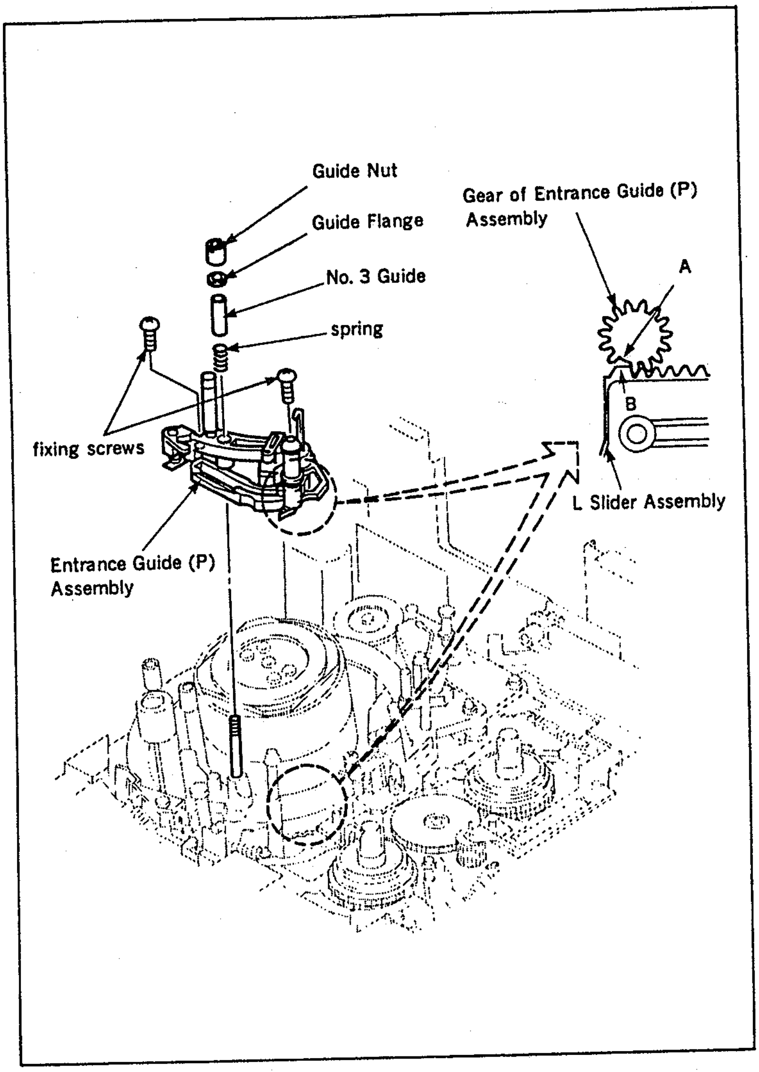
(3) Engage the Entrance Guide (P) Assembly and L Slider Assembly so that their flat portions A and B are matched, and tighten it with two fixing screws.

(4) Assemble the parts with Removal Steps (3) and (5) in reverse order.

(5) Perform the FWD Back Tension Adjustment referring to Section 7-3-5.

(6) Assemble the parts with Removal Steps (1) and (2) in reverse order.

After replacement, perform the Tape Path Adjustment referring to Section 7-4.


Guide Nut
Guide Flange
No. 3 Guide
spring
Gear of Entrance Guide (P) Assembly
A
B
fixing screws
L Slider Assembly
Entrance Guide (P) Assembly

7–2–12. REPLACEMENT OF THE SLANT GUIDE ASSEMBLY

Tool: Mode Selector (Ref. No. J-13)

Removal:

(1) Remove the Cassette-up Compartment Assembly referring to Section 2–15.

(2) Remove the Threading Ring Assembly referring to Section 7–2–5.

(3) Remove the fixing screw and E ring.

(4) Remove the Slant Guide Block Assembly.

Installation:

(1) Operate the L-mode select button of the Mode Selector and align the right edge of the L Slider Assembly and the right side of the Lock Slider M Assebmly. (fig. 2)

Note: At this time, check that the position of the notch on the Slant Guide Drive Gear is placed as shown in figure 2.

(2) Assemble the Guide Base Assembly of new Slant Guide Block Assembly the position of the *unthreading end.

*The Guide Base Assembly is the Reel Table side.

(3) Assemble the parts with Removal Steps (1) to (3) in reverse order.

After replacement, perform the Tape Path Check referring to Section 7-4-6.

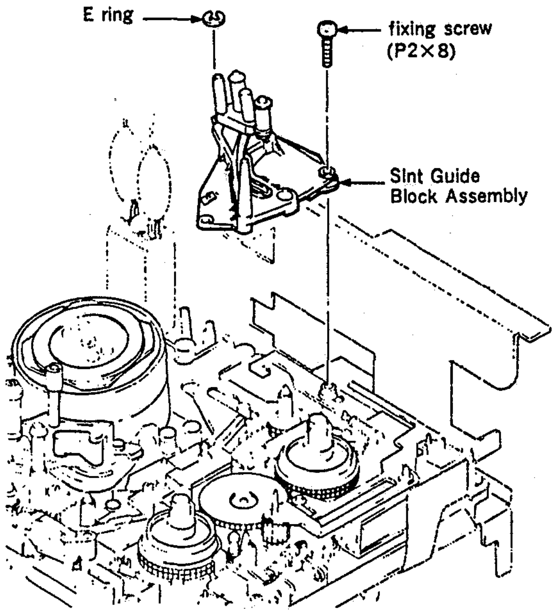

E ring
fixing screw (P2×8)
Slnt Guide Block Assembly

Fig. 1

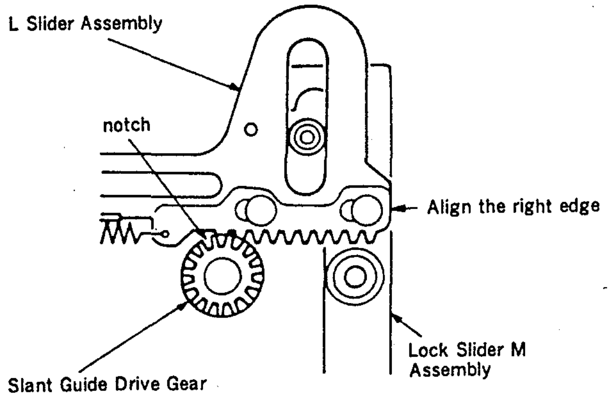

L Slider Assembly
notch
Align the right edge
Lock Slider M Assembly
Slant Guide Drive Gear

Fig. 2

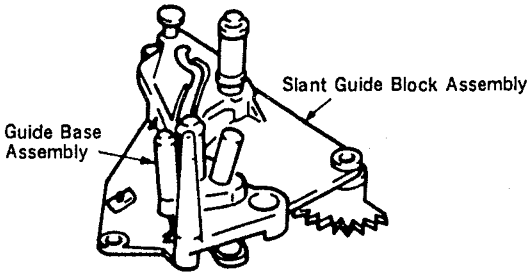

Slant Guide Block Assembly
Guide Base Assembly

Fig. 3

7–2–13. REPLACEMENT OF THE No. 5 GUIDE BLOCK COMPLETE ASSEMBLY

Removal:

(1) Open the MB-19 Board referring to Section 2–10.

(2) Turn the Rotary Upper Drum counterclockwise and keep heads away from the fixing screw of the Guide Block.

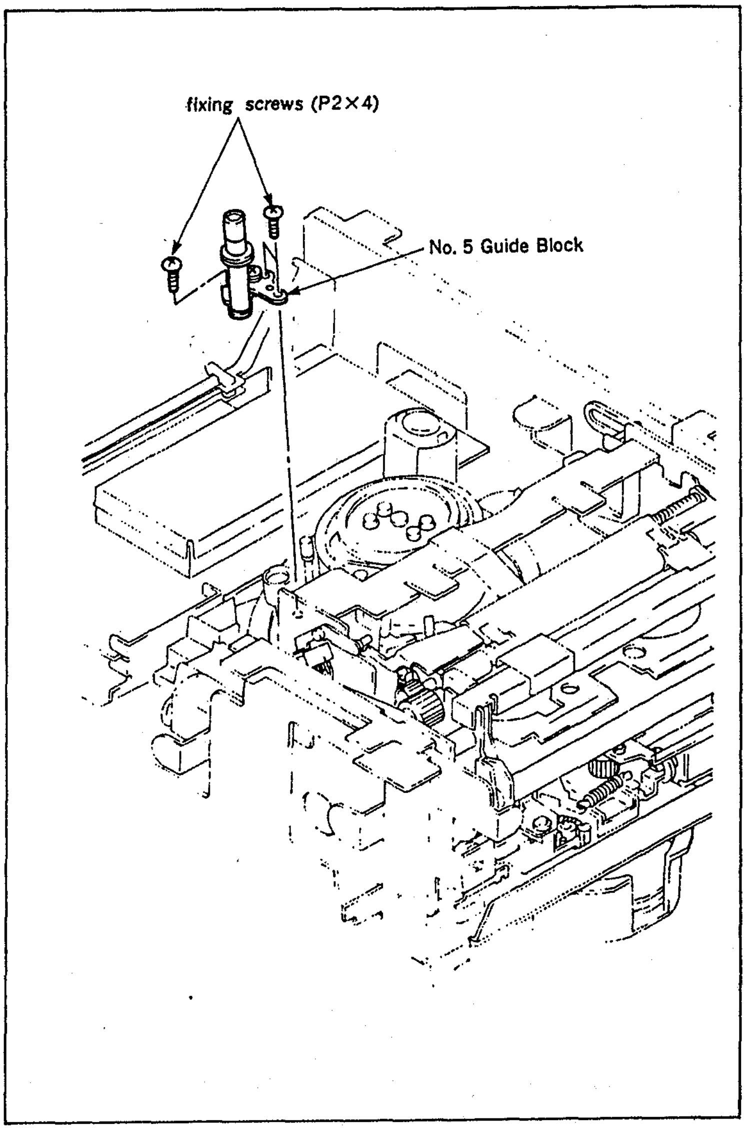
(3) Remove the three fixing screws and remove the No. 5 Guide Block Complete Assembly.

Installation:

(1) Replace the No. 5 Guide Block Complete Assembly with a new one.

(2) Assemble the parts with Removal Steps (1) and (3) in reverse order.

After replacement, perform the Tape Path Adjustment referring to Section 7-4.



7-2-14. REPLACEMENT OF THE S REEL TABLE ASSEMBLY

Tools: Mode Selector (Ref. No. J-14)
Cassette Tape
Dial Tension Gauge (Ref. No. J-6)
Tension Measurement Reel (30 mm dia.)
(Ref. No. J-7)
Sony Oil

Removal:

(1) Remove the Cassette-up Compartment Assembly referring to Section 2-15.

(2) Press the M-mode select button of the Mode Selector and set to the FF/REW mode.

(3) Remove the fixing screw and remove the Reel Table Stopper.

(4) Remove the S Reel Table Assembly.
Note: Be sure to hold the upper reel claw when removing the S Reel Table. (Note of figure)

Installation:

(1) Apply a half drop of oil on the top point of the Reel Shaft.

(2) Move the S Main Brake Assemvly in the direction of the arrow.

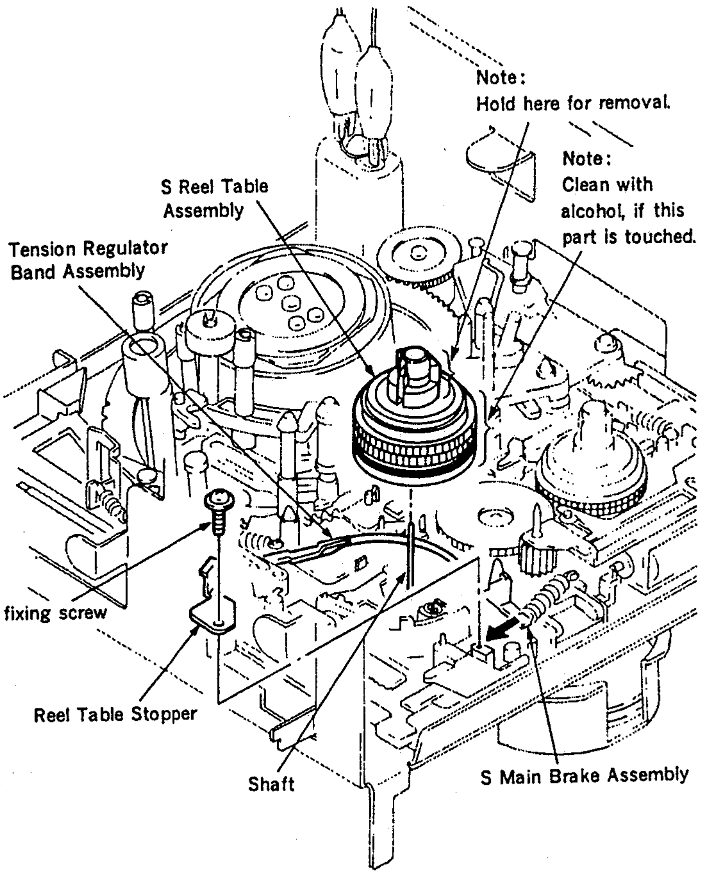
(3) Install the new S Reel Table Assembly while being carefull not to pinch the Tension Regulator Band Assembly.

(4) Install the Reel Table Stopper and tighten it with the fixing screw.

(5) Press the M-mode select button of the Mode Selector and set to the LOADING/UNLOADING mode.

(6) After replacement, perform the FWD running more than two minutes. Then, perform the FWD Back Tension Adjustment referring to Section 7-3-5.

(7) Install the Cassette-up Compartment Assembly referring to Section 2-15.


Note:
Hold here for removal.
Note:
Clean with alcohol, if this part is touched.
S Reel Table Assembly
Tension Regulator Band Assembly
fixing screw
Reel Table Stopper
Shaft
S Main Brake Assembly

7-2-15. REPLACEMENT OF THE T REEL TABLE ASSEMBLY

Tools: Mode Selector (Ref. No. J-13)
Sony Oil

Removal:

(1) Remove the Cassette-up Compartment Assembly referring to Section 2-15.

(2) Press the L-mode select button of the Mode Selector and set to the UNLOADING WAIT mode.

(3) Hook the spring which is hooked on the T.S Brake Assembly to the claw of the Lock Slider Assembly.

(4) Remove the stopper washer and remove the T.S Brake Assembly.

(5) Press the M-mode select button of the Mode Selector and set to the EJECT mode.

(6) Move the Drive Gear B Assembly in the direction of the arrow.

(7) Remove the T Reel Table Assembly.

Note: Be sure to hold the upper reel claw when removing the T Reel Table. (Note of figure)

Installation:

(1) Apply a half drop of oil on the top point of the Reel Shaft.

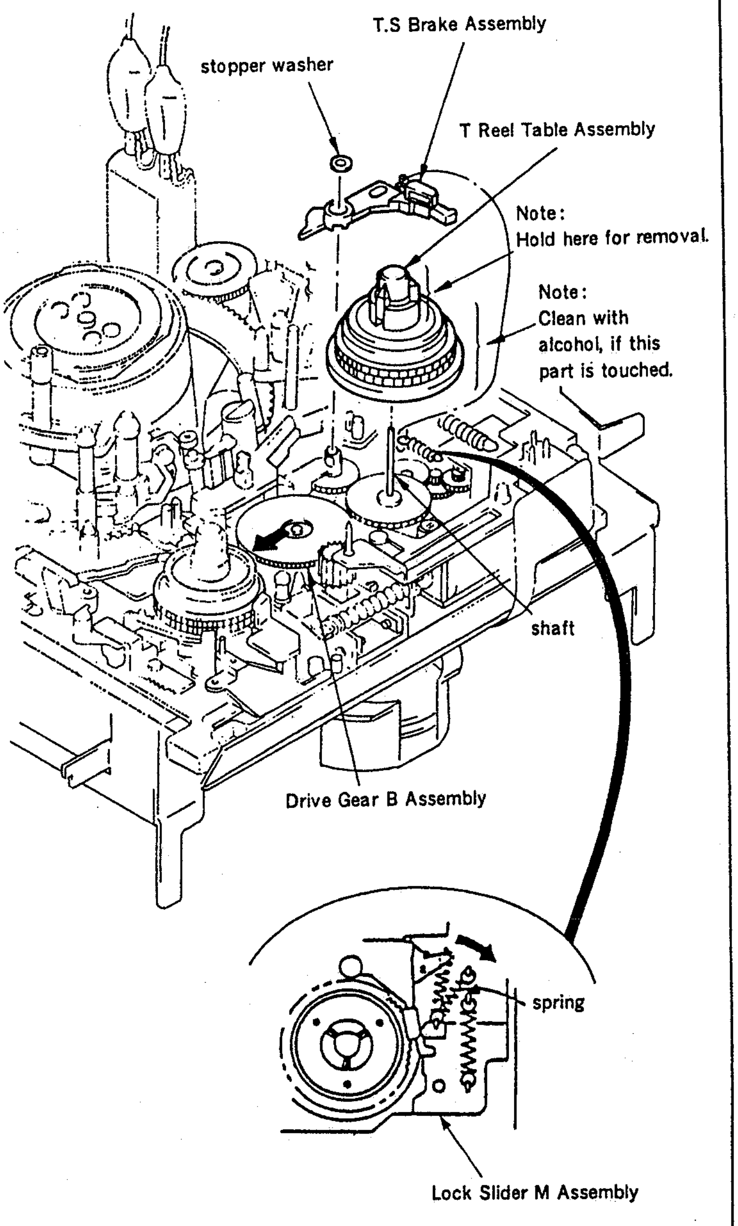
(2) Move the Drive Gear B Assembly in the direction of the arrow. (Check that the Mode Selector sets to EJECT mode.)

(3) Replace the T Reel Table Assembly with a new one.

(4) Assemble the parts with Steps (4) and (5) in reverse order.

(5) Set the L-mode to LOADING TOP mode and set the M-mode to LOADING/UNLOADING mode.

(6) Install the Cassette-up Compartment Assembly referring to Section 2-15.



Note:
Hold here for removal.

Note:
Clean with alcohol, if this part is touched.

7-2-16. REPLACEMENT OF THE PINCH PRESS ARM ASSEMBLY

Tool: Sony Oil

Removal:

(1) Open the MB-19 Board referring to Section 2-10.

(2) Hook the spring which is hooked to the Spring Hook Assembly to the Pinch Press Assembly as shown in the figure.

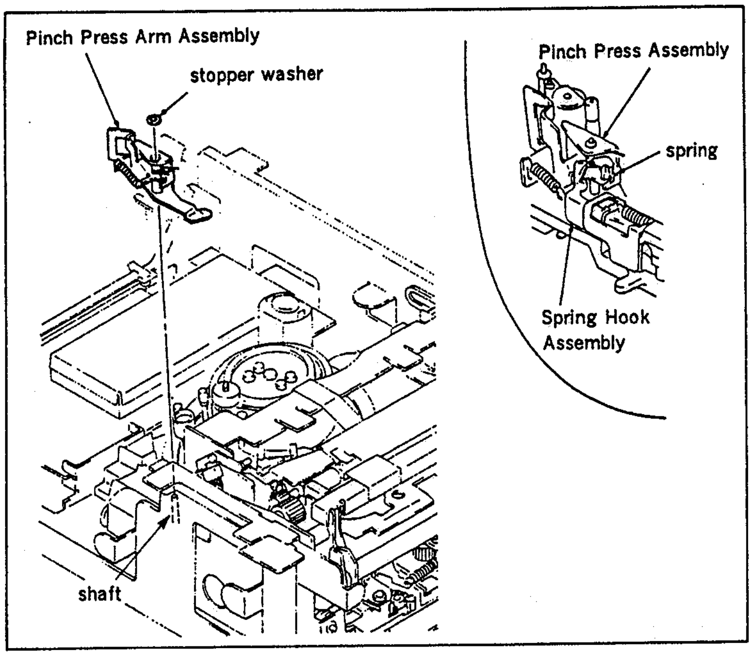
(3) Remove the stopper washer and remove the Pinch Press Arm Assembly.

Installation:

(1) Apply a half drop of oil on the shaft.

(2) Replace the Pinch Press Arm Assembly with a new one.

(3) Assemble the parts with Removal Steps (1) to (3) in reverse order.


Pinch Press Arm Assembly
stopper washer
shaft
Pinch Press Assembly
spring
Spring Hook Assembly

7-2-17. REPLACEMENT OF THE TENSION REGULATOR ARM ASSEMBLY

Tools: Mode Selector (Ref. No. J-13)
Sony Oil
Locking Compound

Removal:

(1) Remove the Cassette-up Assembly referring to Section 2-15.

(2) Replace the spring referring to Removal step (2) of Section 7-2-16.

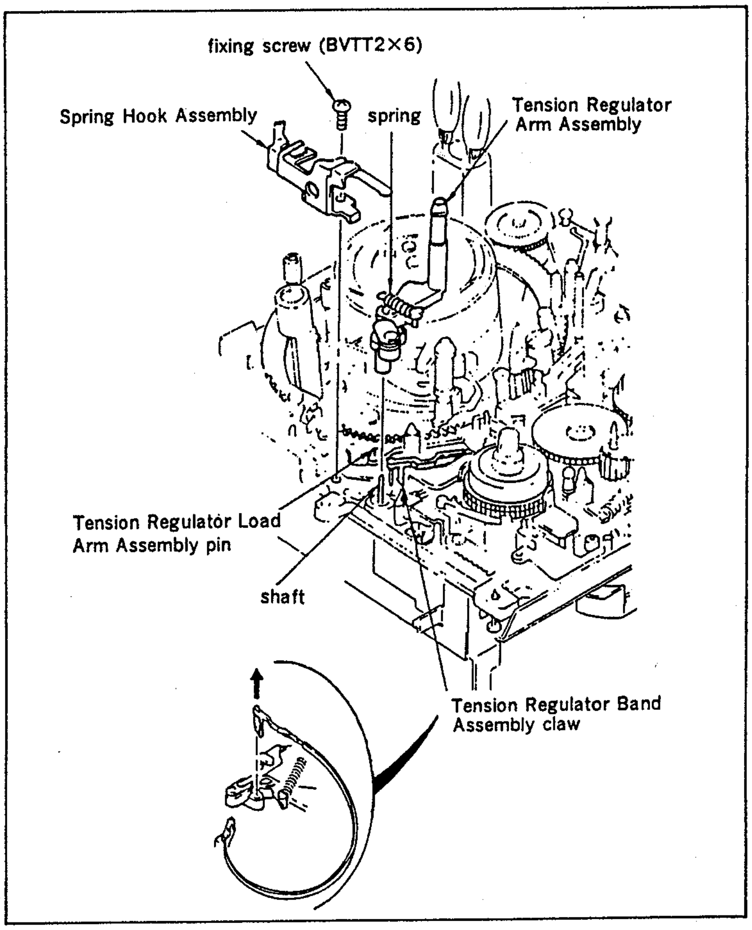
(3) Remove the spring which is hooked to the Tension Regulator Spring Hook Assembly.
(Make a note of the hooking position.)

(4) Remove the fixing screw and remove the Tension Regulator Spring Hook Assembly.

(5) Press the M-mode select button of the Mode Selector and set to the FF/REW mode.

(6) Remove the claw of the Tension Regulator Band Assembly.

(7) Remove the Tension Regulator Arm Assembly.


fixing screw (BVTT2×6)
Spring Hook Assembly
spring
Tension Regulator Arm Assembly
Tension Regulator Load Arm Assembly pin
shaft
Tension Regulator Band Assembly claw

Installation:

(1) Apply a half drop of oil on the shaft.

(2) Replace the Tension Regulator Arm Assembly with a new one.

(3) Install the Tension Regulator Arm Assembly while inserting the pin of the Tension Regulator Load Arm Assembly in the cam groove (on the back of the Arm) of the Tension Regulator Arm Assembly.

(4) Install the claw of the Tension Regulator Band Assembly.

Note: Do not touch the inside of the band and bend it.

(5) Press the M-mode select button of the Mode Selector and set to the LOADING/UNLOADING mode.

(6) Install the Tension Regulator Spring Hook Assembly and tighten it with the fixing screw.

(7) Smear the Locking Compound to the head of the fixing screw.

(8) Assemble the Parts with Removal Steps (1) to (3) in reverse order.

After replacement, perform the Tape Path Check referring to Section 7-4-6.

7-2-18. REPLACEMENT OF THE TENSION REGULATOR BAND ASSEMBLY

Tools: Mode Selector (Ref. No. J-13)
Cassette Tape
Dial Tension Gauge (Ref. No. J-6)
Tension Measurement Reel (30 mm dia.)
(Ref. No. J-7)

Removal:

(1) Remove the Cassette-up Compartment Assembly referring to Section 2-15.

(2) Remove the S Reel Table Assembly referring to Removal of Section 7-2-14.

(3) Release the claw of the Band Arm and remove one side of the Tension Regulator Band Assembly.

(4) Release the claw from the Tension Regulator Arm Assembly and remove the Tension Regulator Band Assembly.

Installation:

(1) Replace the Tension Regulator Band Assembly with a new one.

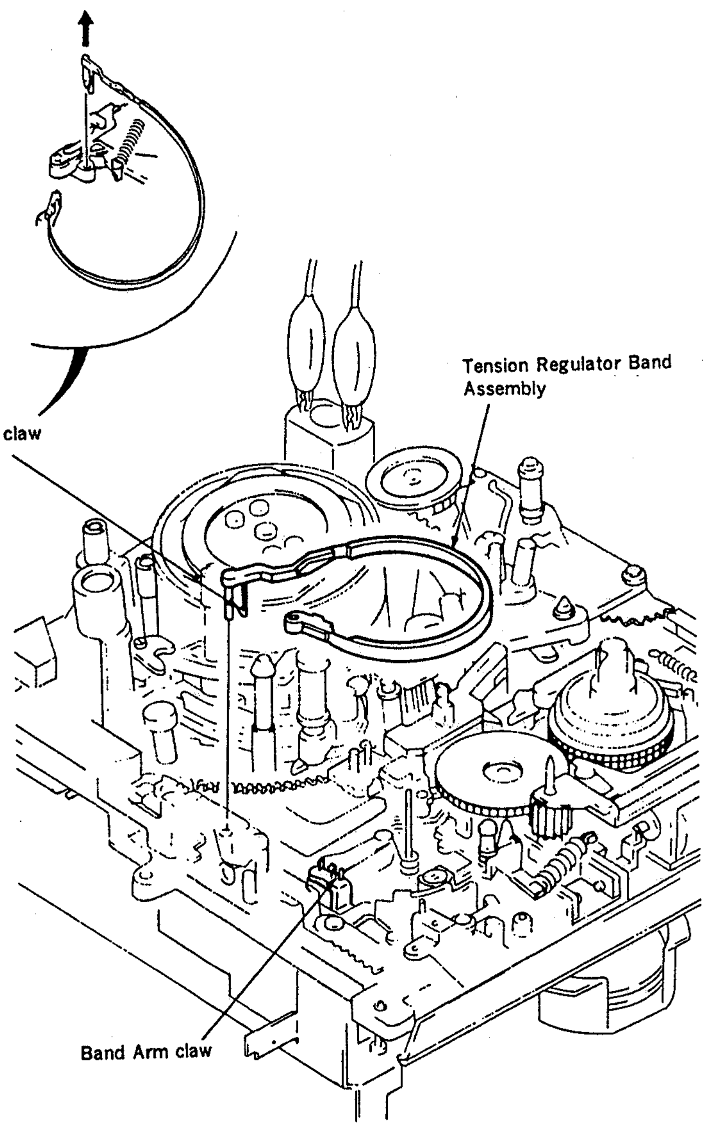
(2) Install the Tension Regulator Band Assembly with Removal Steps (3) and (4) in reverse order.

Note: Do not touch the inside of the band and bend it.

(3) Install the S Reel Table Assembly referring Installation of Section 7-2-14.

(4) After replacement, perform the FWD running more than two minutes and then perform the FWD Back Tension Adjustment referring to Section 7-3-5.

(5) Install the Cassette-up Compartment Assembly referring to Section 2-15.



7–2–19. REPLACEMENT OF THE L SLIDER ASSEMBLY

Tools: Mode Selector (Ref. No. J-13)
Sony Grease

Removal:

(1) Remove the Cassette-up Compartment Assembly referring to Section 2–15.

(2) Remove the Fly Wheel referring to Section 7–2–2.

(3) Remove the Threading Ring Assembly referring to Section 7–2–5.

(4) Remove the Entrance Guide (P) Assembly referring to 7–2–11.

(5) Remove the Slant Guide Block Assembly referring to Section 7–2–12.

(6) Press the L-mode select button of the Mode Selector and set to the DRUM START mode.

(7) Remove the Slant Guide Drive Gear.

(8) Remove the two stopper washers from the L Slider Assembly.

(9) While pushing the projection of the RL Arm Assembly in the direction of the arrow, lift the right side of the L Slider Assembly and remove it from the shaft.

(10) Lift the right side of the L Slider Assembly as shown in figure 2 and remove the pin of the Tension Regulator Load Arm Assembly from the cam groove of the Tension Regulator Arm Assembly, and then remove the L Slider Assembly.

(11) Remove the stopper washer and remove the Tension Regulator Load Arm Assembly.

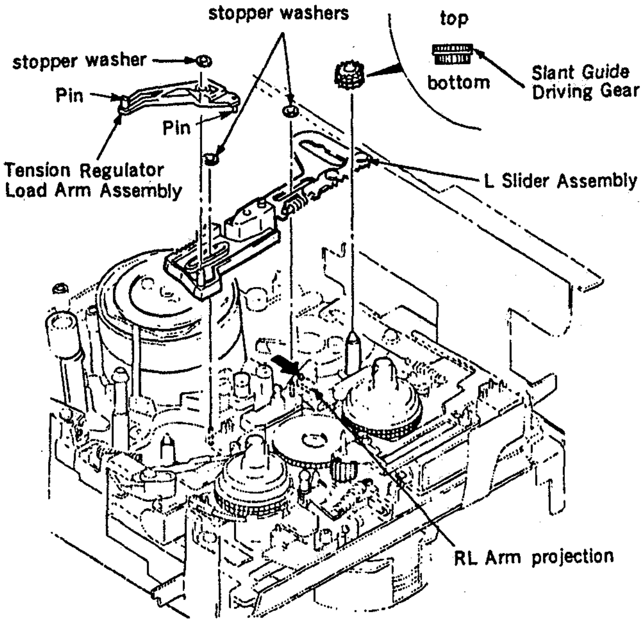

stopper washers
top
stopper washer
Pin
bottom
Slant Guide Driving Gear
Pin
Tension Regulator Load Arm Assembly
L Slider Assembly
RL Arm projection

Fig. 1

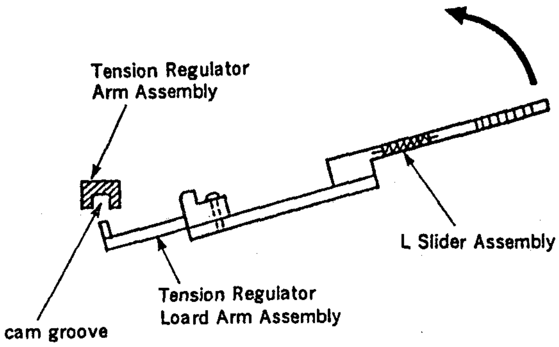

Tension Regulator Arm Assembly
L Slider Assembly
Tension Regulator Loard Arm Assembly
cam groove

Fig. 2

Installation:

(1) Replace the L Slider Assembly with a new one and smear Sony Grease to the three longitudinal holes as shown in figure 3.

(2) Assemble the parts with Removal Steps (8) to (11) in reverse order.

Note: When inserting the pin of the Tension Regulator Load Arm Assembly in the cam groove of the Tension Regulator Arm Assembly, insert, the another pin into the groove of the M Slider.

(3) Press the L-mode select button of the Mode Selector and align the right edges of the L Slider Assembly and the Lock Slider M Assembly. (fig. 4)

(4) Engage the Slant Guide Drive Gear with L Slider Assembly so that the notch of the Drive Gear is 1 tooth away from the left and gear of the L Slider Assembly as shown in the figure 4.

(5) Assemble the parts with Removal Steps (1) to (5) in reverse order.

After replacement, perform the Tape Path Adjustment referring to Section 7-4.

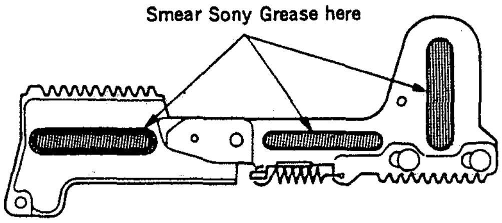

Smear Sony Grease here

Fig. 3

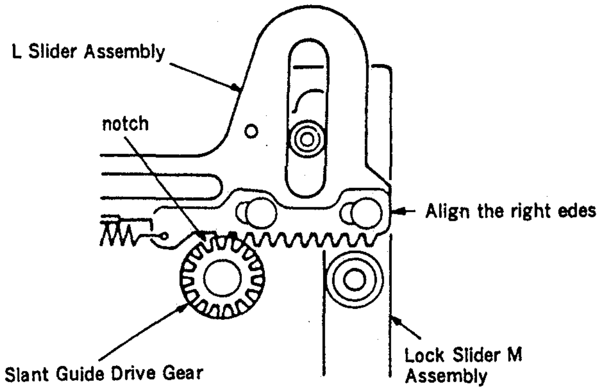

L Slider Assembly
notch
Align the right edes
Slant Guide Drive Gear
Lock Slider M
Assembly

Fig. 4

7–2–20. REPLACEMENT OF THE L–SWITCH ASSEMBLY

Tools: Mode Selector (Ref. No. J-13)
Sony Oil
Sony Grease

Removal:

(1) Remove the Cassette-up Compartment Assembly referring to Section 2–15.

(2) Remove the Fly Wheel referring to Section 7–2–2.

(3) Remove the Threading Ring Assembly referring to Section 7–2–5.

(4) Remove the Entrance Guide (P) Assembly referring to Section 7–2–11.

(5) Remove the Slant Guide Block Assembly referring to Section 7–2–12.

(6) Remove the L Slider Assembly referring to Section 7–2–19.

(7) Remove the Lock Slider Retainer.

(8) Remove the tension spring which is hooked to the Lock Slider A.

(9) Remove the fixing screw and remove the Lock Slider A.

(10) Remove the stop washer of the Drive Changer Assembly and remove the torsion spring.

(11) Remove the Drive Changer Assembly.

(12) Disconnect the connector (6P) on the L-switch Assembly.

(13) Remove the two fixing screws and remove the L-switch Assembly.

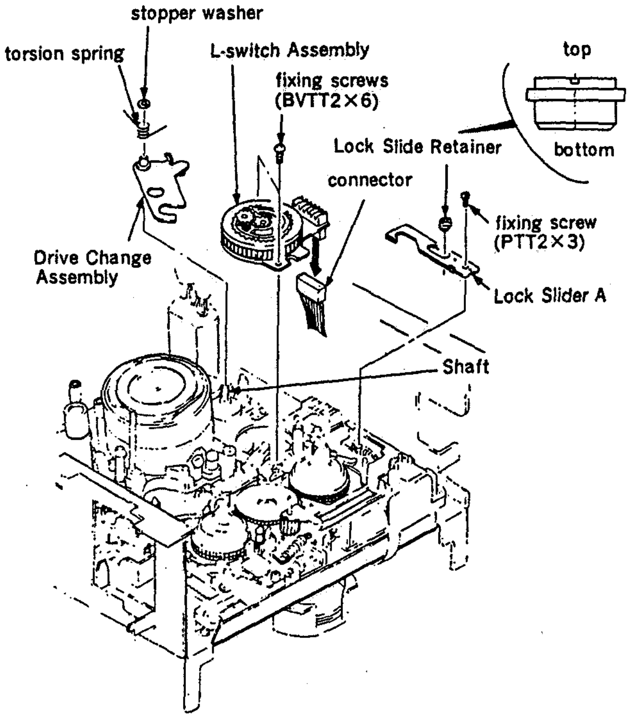

stopper washer
torsion spring
L-switch Assembly
fixing screws
(BVTT2×6)
top
Lock Slide Retainer
bottom
connector
fixing screw
(PTT2×3)
Drive Change
Assembly
Lock Slider A
Shaft

Fig. 1

Installation:

(1) Replace the L-switch Assembly with a new one and apply a half drop of oil on the Planetary Roller Shaft.

(2) Assemble the parts with Removal Steps (12) and (13) in reverse order.

(3) Press the L-mode select button (right or left) of the Mode Selector and check that the L-switch Assembly rotates.

(4) Apply a half drop of oil on the fixing shaft of the Drive Changer Assembly.

(5) Smear Sony Grease to the U groove of the Drive Changer Assembly as shown in figure 2.

(6) Assemble the parts with Removal Steps (10) and (11) in reverse order.

(7) Press the L-mode select button (right or left) of the Mode Selector and check that the L-switch Assembly rotates.

(8) Assemble the parts with Removal Steps (7) to (9) in reverse order.

(9) Press the L-mode select button (righ or left) of the Mode Selector so that the Planetary Roller Shaft is placed to the position shown in figure 3.

(10) Assemble the parts with Removal Steps (1) to (6) in reverse order.

After replacement, perform the Tape Path Adjustment referring to Section 7-4.

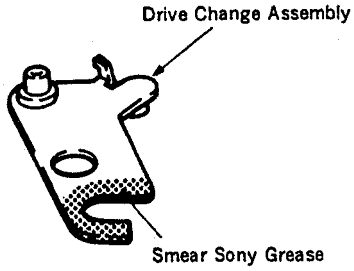

Drive Change Assembly
Smear Sony Grease

Fig. 2

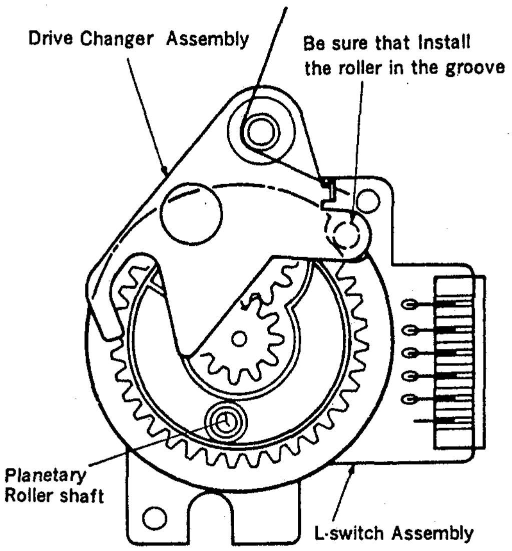

Drive Changer Assembly
Be sure that Install the roller in the groove
Planetary Roller shaft
L-switch Assembly

Fig. 3

7-2-21. REPLACEMENT OF THE PLUNGER SOLENOID

Removal:

(1) Open the MB-19 Board referring to Section 2-10.

(2) Remove the Cassette-up Compartment Assembly referring to Section 2-15.

(3) Remove the spring which is hooked to the Lock Slider M Assembly.

(4) Remove the two stopper washers.

(5) Remove the fixing screw and remove the Lock Slider M Assembly.

(6) Unsolder the three terminals of the Plunger Solenoid of the FP-206 Board.

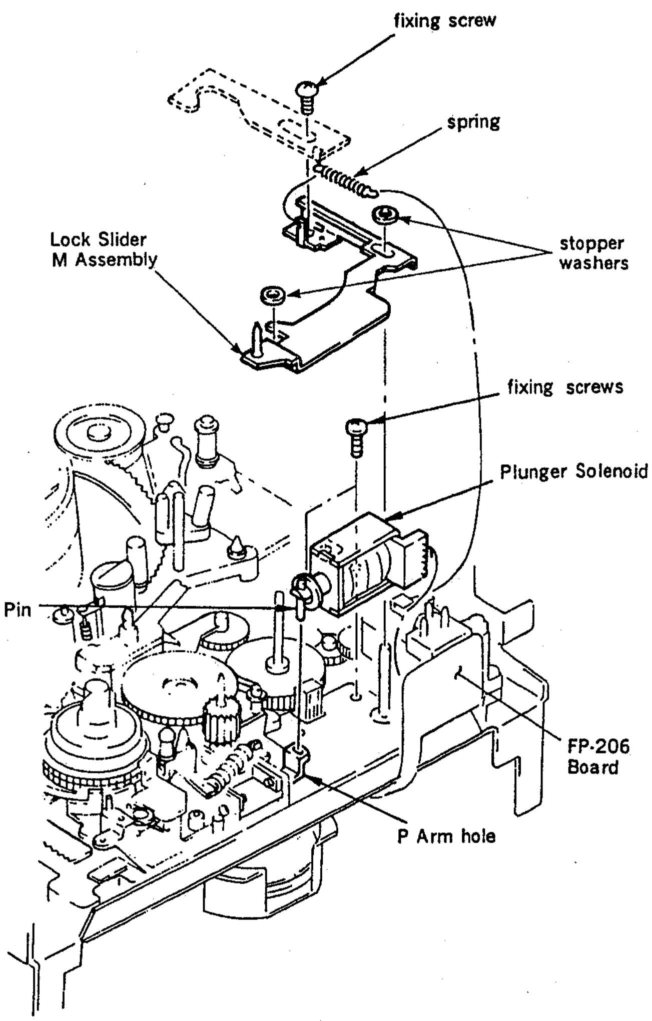
(7) Remove the two fixing screws and remove the Plunger Solenoid. (At this time, be careful not to damage the T Reel Assembly with a screwdriver, and do not touch it.)

Installation:

(1) Replace the Plunger Solenoid with a new one.

(2) Insert the pin of the Plunger Solenoid into the hole of the P Arm and install the new Plaunger Solenoid with the two fixing screws. (At this time, be careful not to damage the T Reel Assembly with a screwdriver and do not touch it.)

(3) Assemble the parts with Removal Steps (1) to (6) in reverse order.


fixing screw
spring
Lock Slider M Assembly
stopper washers
fixing screws
Plunger Solenoid
Pin
FP-206 Board
P Arm hole

7–2–22. REPLACEMENT OF THE M–SWITCH ASSEMBLY

Tools: Mode Selector (Ref. No. J-13)
Sony Oil

Removal:

(1) Remove the Cassette-up Compartment Assembly referring to Section 2–15.

(2) Disconnect the connector (CN301) on the RS-31 Board.

(3) Remove the T Reel Table Assembly referring to Section 7–2–15.

(4) Remove the stopper washer and remove the Drive Gear B Assembly.

(5) Remove the LD-1 Board. (fig. 1)

(6) Remove the Lock Slider M Assembly referring to Removal Steps (3) to (5) of Section 7–2–21.

(7) Remove the tension spring and remove the B Release Arm Assembly.

(8) Check that the M-mode is put into EJECT mode.

(9) Remove the stopper washer and remove the Mode Output Gear.

(10) Release the two claws of the Control Motor Cover and remove the Push Switch.

(11) Disconnect the connctor (6P) on the M-switch Assembly.

(12) Remove the two fixing screws and remove the Control Motor Cover L.

(13) Remove the fixing screw and while lifiting up the M-switch Assembly, push the T.S Release Arm in the direction of the arrow A. Then push the T Main Brake Assembly in the direction of the arrow B and remove the M-switch Assembly.

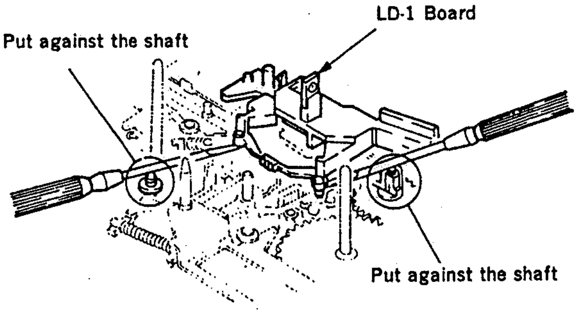

LD-1 Board
Put against the shaft
Put against the shaft

Fig. 1

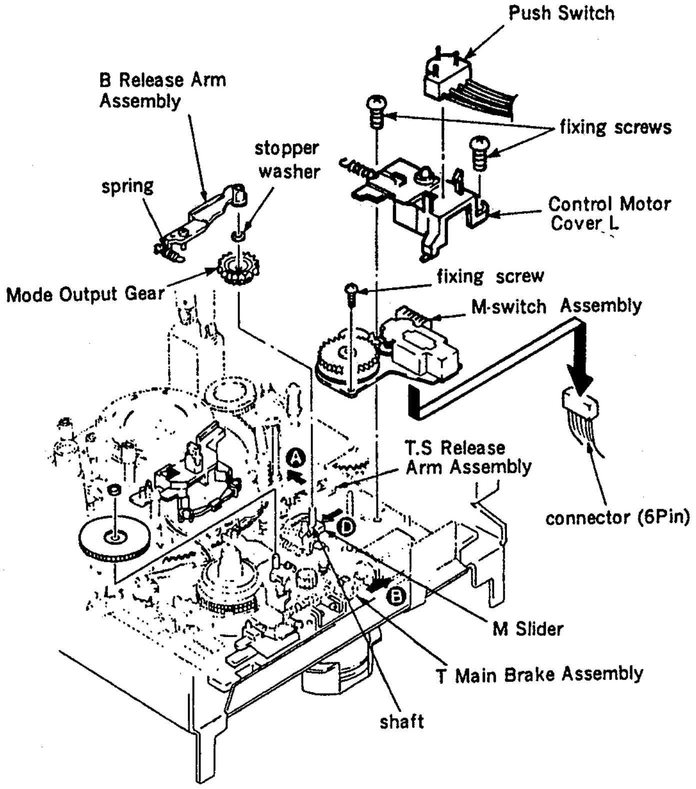

Push Switch
B Release Arm Assembly
fixing screws
stopper washer
spring
Control Motor Cover L
fixing screw
Mode Output Gear
M-switch Assembly
A
T.S Release Arm Assembly
D
connector (6Pin)
B
M Slider
T Main Brake Assembly
shaft

Fig. 2

How to removal the DC Motor:

(1) Unsolder the two terminals at the C points as shown in figure 3 and remove the DC Motor from the MS-4 Board. (fig. 3)

Installation:

(1) Replace the M-switch Assembly with a new one.

(2) Assemble the parts with Removal Steps (10) to (13) in reverse order.

(3) Check that the mechanical block is put into EJECT mode.

(4) Check that the M Slider moves fully in the direction of arrow D. (fig. 2)

(5) Apply a half drop of oil on the shaft of the Mode Output Gear. (fig. 2)

(6) Install the Mode Output Gear so that the center of the M-switch Assembly Gear and the two positioning holes are lined up. (fig. 4)

(7) Install the stopper washer to the shaft of the Mode Output Gear.

(8) Press the M-mode select button of the Mode Selector and set to the LOADING/UNLOADING mode.

(9) Assemble the parts with Removal Steps (1) to (7) in reverse order.

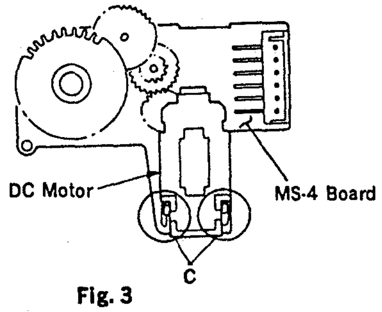

DC Motor
MS-4 Board
C

Fig. 3

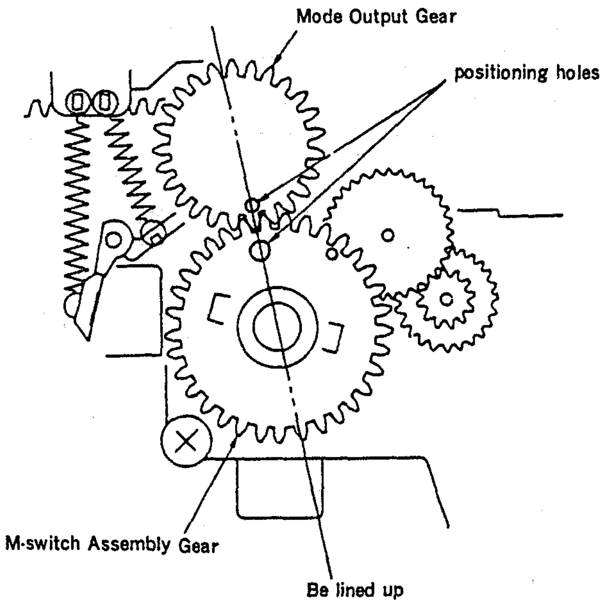

Mode Output Gear
positioning holes
M-switch Assembly Gear
Be lined up

Fig. 4

7-2-23. REPLACEMENT OF THE M SLIDER

Tools: Mode Selector (Ref. No. J-13)
Sony Oil
Sony Grease

Removal:

(1) Remove the Cassette-up Compartment Assembly referring to Section 2-15.

(2) Remove the Threading Ring Assembly referring to Section 7-2-5.

(3) Remove the S Reel Table Assembly referring to Section 7-2-14.

(4) Remove the T Reel Table Assembly referring to Section 7-2-15.

(5) Remove the Pinch Press Arm Assembly referring to Section 7-2-16.

(6) Remove the Tension Regulator Arm Assembly referring to Section 7-2-17.

(7) Remove the Tension Regulator Band Assembly referring to Section 7-2-18.

(8) Remove the Drive Gear (B) Assembly, LD-1 Board, Lock Slider M Assembly and B Release Arm Assembly referring to Removal Steps(2)to(7)of Section 7-2-22.

(9) Remove the Tension Regulator Load Arm Assembly referring to Removal Step (11) of Section 7-2-19.

(10) Remove the tension spring which is hooked to the S Main Brake Assembly.

(11) Remove the two stopper washers and remove the S Main Brake Assembly and T Main Brake Assembly.

(12) Operate the Mode Selector and set the L-mode to LOADING TOP mode and the M-mode to LOADING/UNLOADING mode.

(13) Remove the fixing screw and remove the Drive Complete Assembly.

(14) Remove the Mode Output Gear referring to Removal Steps (8) and (9) of Section 7-2-22.

(15) Remove the two tension springs which are hooked to the REW Brake Assembly and B Release Slider.

(16) Remove the REW Brake Assembly and remove the REW Brake Spacer.

(17) Remove the stopper washer and remove the B Release Slider.

(18) Remove the stopper washer and remove the Ring Lock Spring and RL Arm.

(19) Move the M Slider to the right. At this time, leave about 5mm space between the fixing shaft and left edge of M Slider's longitudinal hole.

(20) Remove the E ring and remove the Pinch Press Lever Assembly.

(21) Remove the tension spring and remove the Hard Brake S.

(22) Remove the stopper washer and push the Mode Arm in the direction of the arrow. Lift up the left side of the M Slider to remove.

Installation:

(1) Replace the M Slider with a new one and smear grease. (fig. 2)

(2) Push the Mode Arm in the direction of the arrow. (fig. 1) While being careful to the positional relationship with other parts install the M Slider. Then install the stopper washer. (fig. 3)

(3) Install the Hard Brake S and hook the tension spring to it.

(4) Smear grease to the Pinch Press Lever Assembly. (fig. 4)

(5) Apply a half drop of oil to the part under the groove of Pinch Press Lever Assembly's shaft.

(6) Assemble the parts with Removal Steps (16) to (18) and (20) in reverse order.

(7) Hook the two tension springs to the REW Brake Assembly and B Release Slider.

Note: Hook the two tension springs as follows and be careful not to mix them.

- B Release Slider Spring: diameter 2 mm, wire diameter 0.18mm
- REW Brake Assembly Spring: diameter 1.6 mm, wire diameter 0.12mm

(8) Move the M Slider to the left fully.

(9) Press the M mode select button of the Mode Selector and set to EJECT mode.

(10) Install the Mode Output Gear referring to Installation Steps (5) to (7) in Section 7–2–22.

(11) Press the M mode select button of the Mode Selector and set to the LOADING/UNLOADING mode.

(12) Insert the horizontal shaft of the Drive Complete Assembly into the groove of the Upper and Lower Selection Arm and tighten the fixing screw.

(13) Assemble the parts with Removal Steps (1) to (11) in reverse order.

After replacement, perform the Tape Path Check referring to Section 7-4-6.

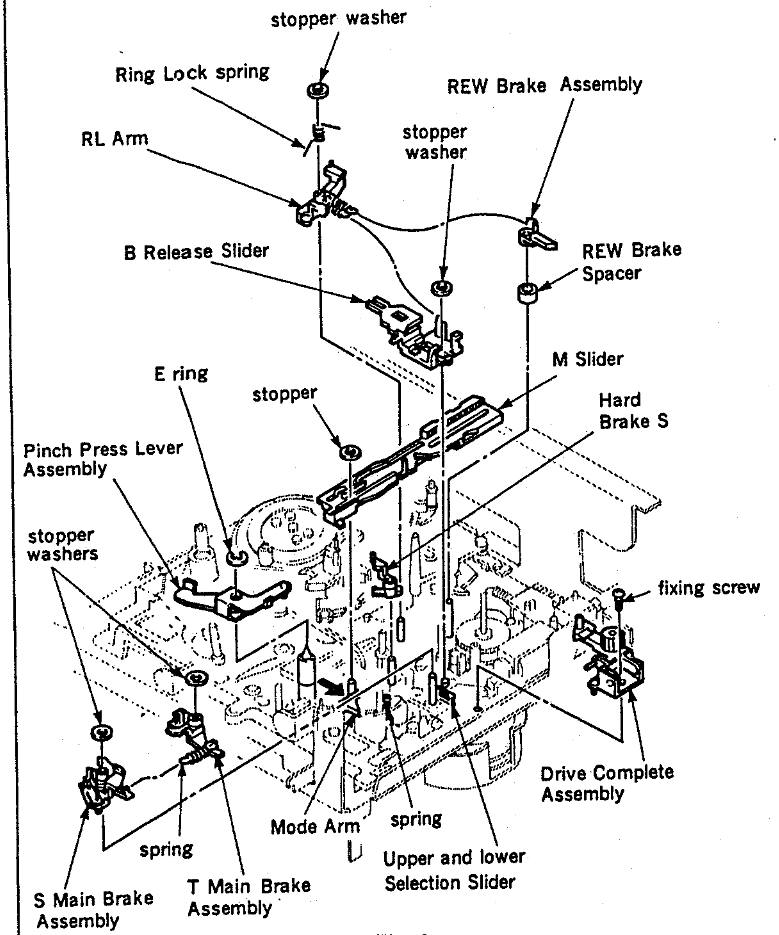

stopper washer
Ring Lock spring
RL Arm
REW Brake Assembly
stopper washer
B Release Slider
REW Brake Spacer
M Slider
E ring
stopper
Hard Brake S
Pinch Press Lever Assembly
stopper washers
fixing screw
Drive Complete Assembly
Mode Arm
spring
spring
Upper and lower Selection Slider
S Main Brake Assembly
T Main Brake Assembly

Fig. 1

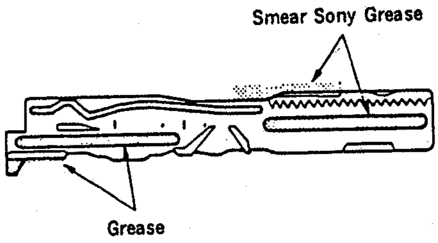

Smear Sony Grease
Grease

Fig. 2

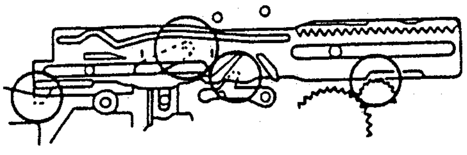


Fig. 3

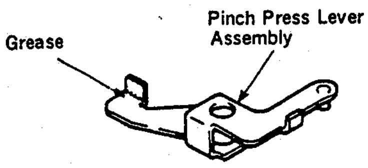

Grease
Pinch Press Lever Assembly

Fig. 4

7-2-24. INSTALLATION OF THE BLOCK PLATE ASSEMBLY

When removing the Block Plate Assembly, installing procedures are as follows:

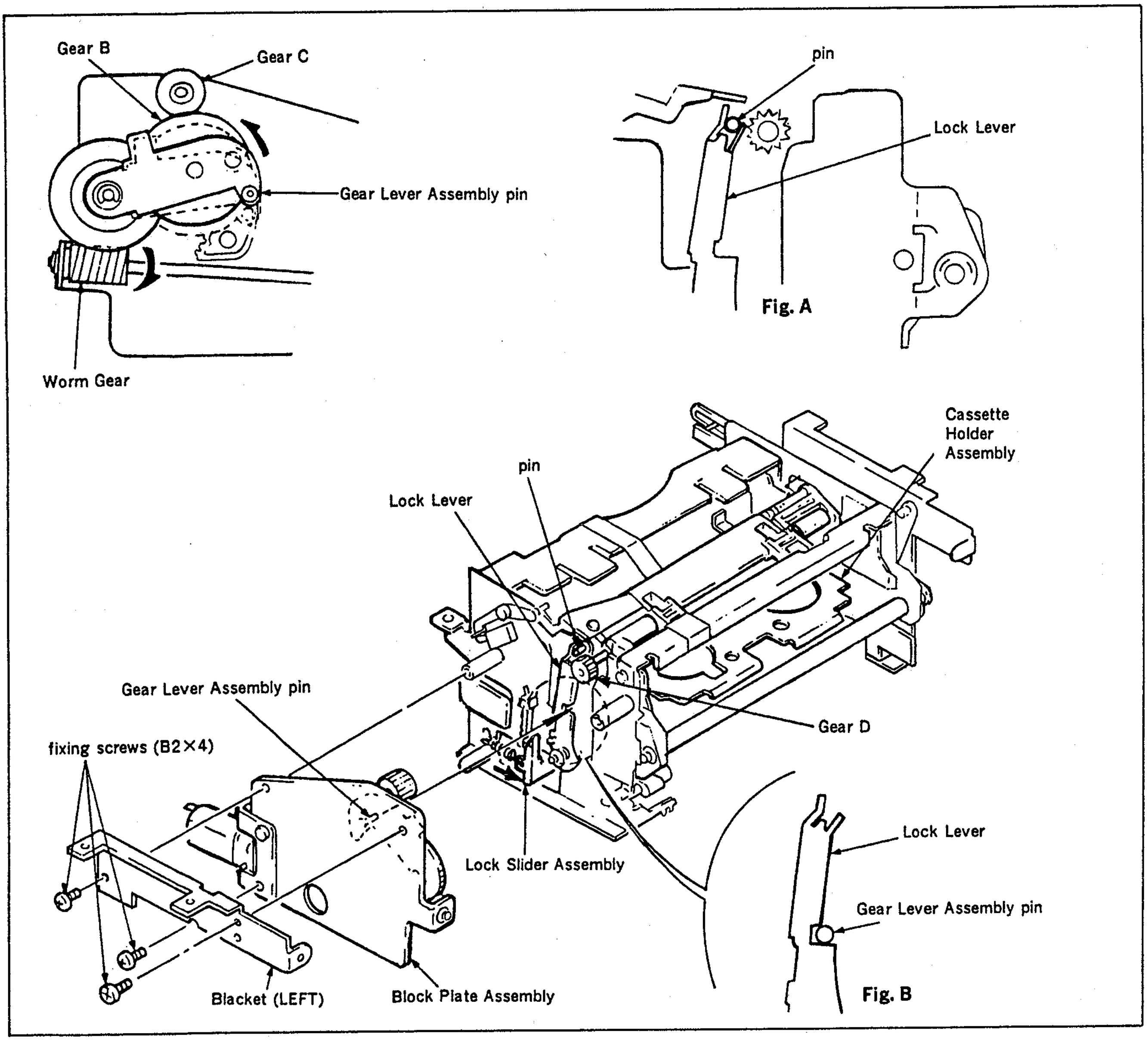
(1) Push the Lock Slider Assembly in the direction of the arrow and lift the Cassette Holder.

(2) Check that the positional relationship between the Lock Lever and pin is as shown in figure A.

(3) Turn the Worm Gear in the direction of the arrow and engage the Gear B and Gear C.

(4) While checking that positional relationship between the pin of the Gear Lever Assembly and Lock Lever is as shown in figure B, fix the Block Plate Assembly and Blacket (LEFT) with three fixing screws.

(5) Check that the Gear C and D are engaged.

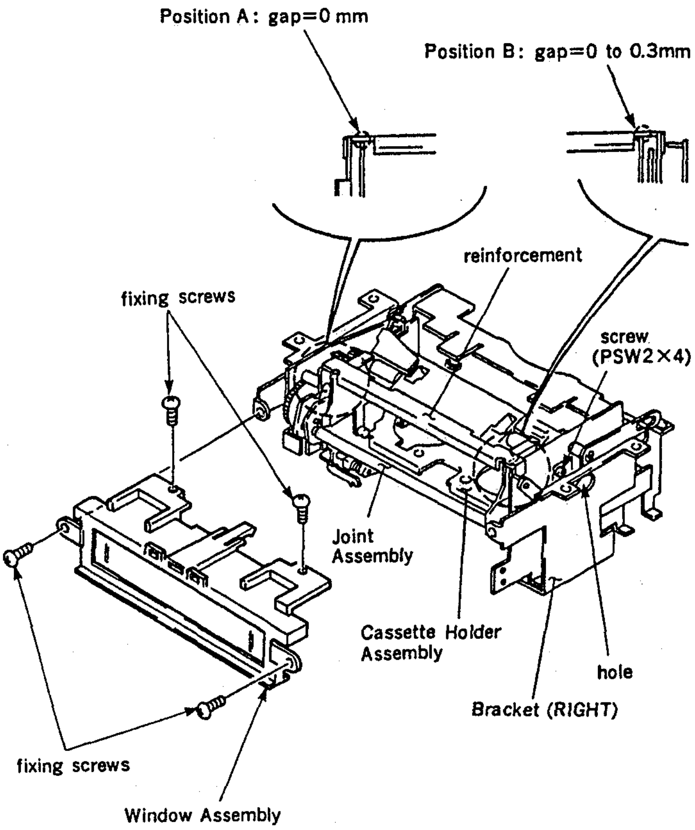

Gear B
Gear C
Gear Lever Assembly pin
Worm Gear
pin
Lock Lever
Fig. A
Cassette Holder Assembly
pin
Lock Lever
Gear Lever Assembly pin
fixing screws (B2×4)
Gear D
Lock Slider Assembly
Lock Lever
Gear Lever Assembly pin
Blacket (LEFT)
Block Plate Assembly
Fig. B

7–2–25. PARALLELISM ADJUSTMENT OF THE CASSETTE HOLDER BLOCK

When the following trouble happen, perform this adjustment. When inserting or ejecting the cassette, it is caught in the Cassette Holder Assembly or Joint Assembly, etc., and does not move smoothly.

Adjustment procedure:

(1) Open the MB-19 Board referring to Section 2–10.
(2) Remove the Cassette-up Compartment Assembly referring to Section 2–15.
(3) Remove the four fixing screws and remove the Window Assembly.
(4) Loosen the screw (PSW2 X 4) from the hole of the Braket (RIGHT).
(5) Push the bottom of the Cassette Holder Assembly against the reinforcement, and adjust the position so that there is no clearance at points A and B.
(6) Tighten the screw (PSW2 X 4) and smear locking compound to it.
(7) Assemble the parts with Steps (1) to (3) in reverse order.


Position A: gap=0 mm
Position B: gap=0 to 0.3mm
reinforcement
fixing screws
screw (PSW2×4)
Joint Assembly
Cassette Holder Assembly
hole
Bracket (RIGHT)
fixing screws
Window Assembly

7-3. TORQUE AND BACK TENSION ADJUSTMENT

After removing the Mechanical Deck and Cassette-up Compartment from the unit referring to Section 2-6 and 2–15, perform these adjustments except for Section 7-3-4.

7-3-1. CHECK OF THE MAIN BRAKE TORQUE

1. S Main Brake Torque

Tools: Mode Selector (Ref. No. J-13)
Tension Measurement Reel
(Ref. No. J-8)
Dial Tension Gauge (Ref. No. J-6)

Mode: Press the M-mode select button of the Mode Selector and set to the FF/REW mode.

Check Procedure:

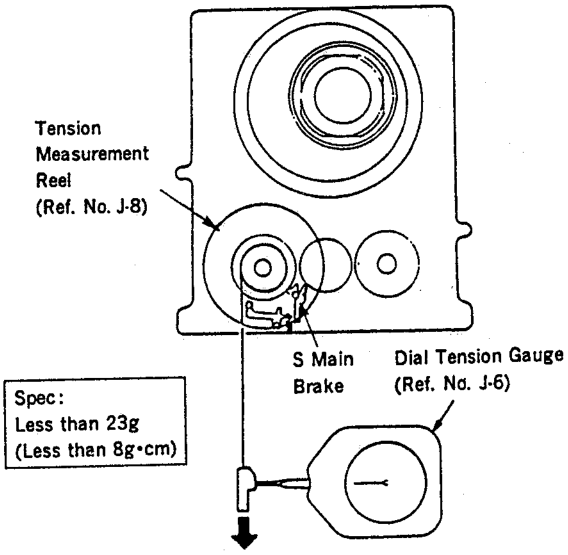
(1) Set the Tension Measurement Reel on the S Reel Table and put the Dial Tension Gauge at the end of the string.

(2) Pull out the Dial Tension Gauge in the direction of the arrows and check that those readings meet the required specifications as shown in figure 1 and 2.

Note: Both S Main Brake and S Soft Brake work in the FF/REW mode.

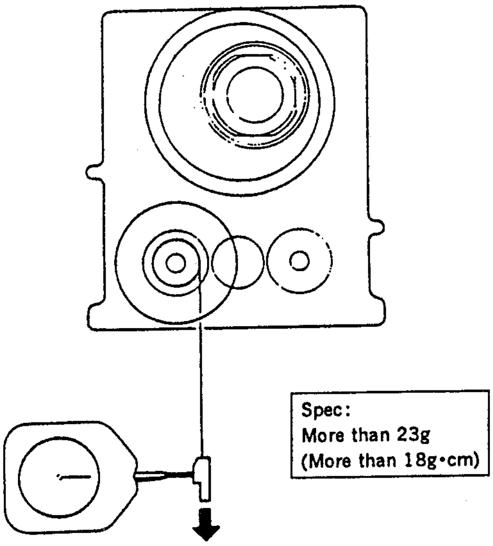
Adjustment Procedure:

(1) If the reading do not meet the required specification, replace the S Main Brake or S Reel Table Assembly.


Tension Measurement Reel (Ref. No. J-8)
S Main Brake
Dial Tension Gauge (Ref. No. J-6)

Spec:
Less than 23g
(Less than 8g·cm)

Fig. 1



Spec:
More than 23g
(More than 18g·cm)

Fig. 2

2. T Main Brake Torque

Tools: Mode Selector (Ref. No. J-13)
Tension Measurement Reel
(Ref. No. J-8)
Dial Tension Gauge (Ref. No. J-6)

Mode: Press the M-mode select button of the Mode Selector and set to the FF/REW mode.

Check Procedure:

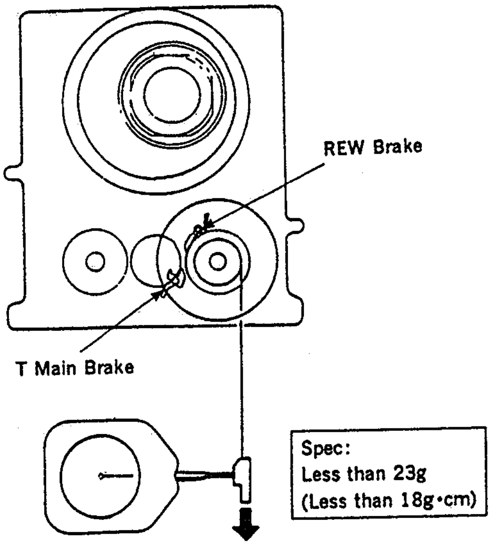
(1) Set the Tension Measurement Reel on the T Reel Table and put the Dial Tension Gauge at the end of the string.

(2) Pull out the Dial Tension Gauge in the direction of the arrows and check that these readings meet the required specifications as shown in figure 1 and 2.

Note: Both T Main Brake and REW Brake work in the FF/REW mode.

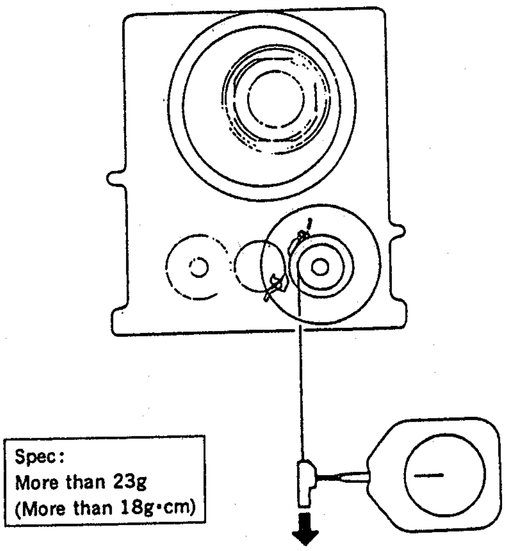
Adjustment Procedure:

(1) If the reading do not meet the required specification, replace T Main Brake or T Reel Table.



Spec:
Less than 23g
(Less than 18g·cm)

Fig. 1



Spec:
More than 23g
(More than 18g·cm)

Fig. 2

7-3-2. CHECK OF THE SOFT BRAKE TORQUE

1. S Side Soft Brake Torque

Tools: Mode Selector (Ref. No. J-13)
Tension Measurement Reel
(Ref. No. J-8)
Dial Tension Gauge (Ref. No. J-6)

Mode: Press the M-mode select button of the Mode Selector and set to the FF/REW mode.

Check Procedure:

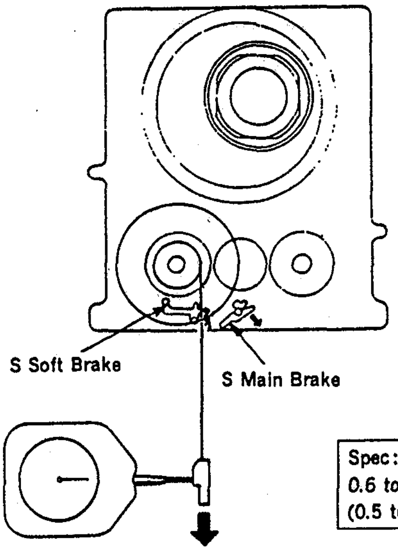
(1) Set the Tension Measurement Reel on the S Reel Table and put the Dial Tension Gauge at the end of the string.

(2) Release the S Main Brake by hand.

(3) While releasing the S Main Brake, pull out the Dial Tension Gauge in the direction of the arrow. Check that this reading meets the required specification.

Adjustment Procedure:

(1) Adjust the strength of S Soft Brake Spring by streching or cutting.



Spec:
0.6 to 3.1g
(0.5 to 2.5g•cm)

2. T Side Soft Brake Torque

Tools: Mode Selector (Ref. No. J-13)
Tension Measurement Reel
(Ref. No. J-8)
Dial Tension Gauge (Ref. No. J-6)

Mode: Press the M-mode button of the Mode Selector and set to the $\boxed{\text{RVS}}$ mode.

Check Procedure:

(1) Set the Tension Measurement Reel on the T Reel Table and put the Dial Tension Gauge at the end of the string.

(2) Release the T Main Brake by hand.

(3) While releasing the S Main Brake, pull out the Dial Tension Gauge in the direction of the arrow. Check that this reading meets the required specification.

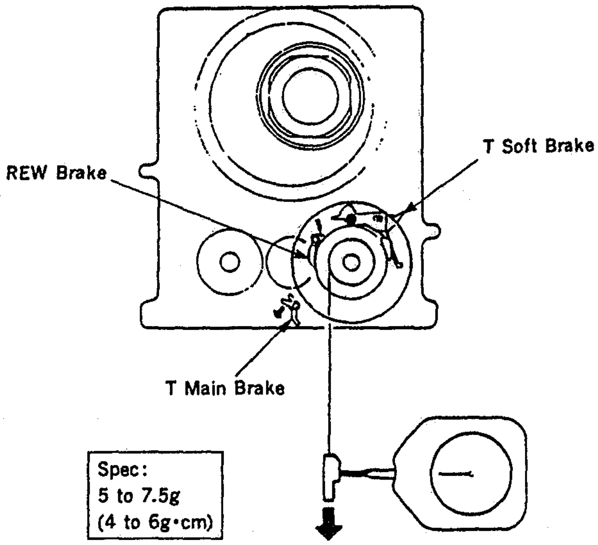
Note: Both T Soft Brake and REW Brake work in the RVS mode.

Adjustment Procedure:

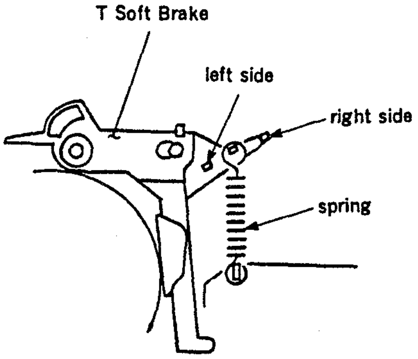
(1) Change the position of the tension spring which is hooked to the T Soft Brake.

- more than the spec. : Hook the left side.
- less than the spec. : Hook the right side.

(2) If the reading do not meet the required specification with Step (1), replace the T Soft Brake or REW Brake, or both of them.



Spec:
5 to 7.5g
(4 to 6g·cm)



7-3-3. CHECK OF THE REW BRAKE TORQUE

Tools: Mode Selector (Ref. No. J-13)
Tension Measurement Reel
(Ref. No. J-8)
Dial Tension Gauge (Ref. No. J-6)

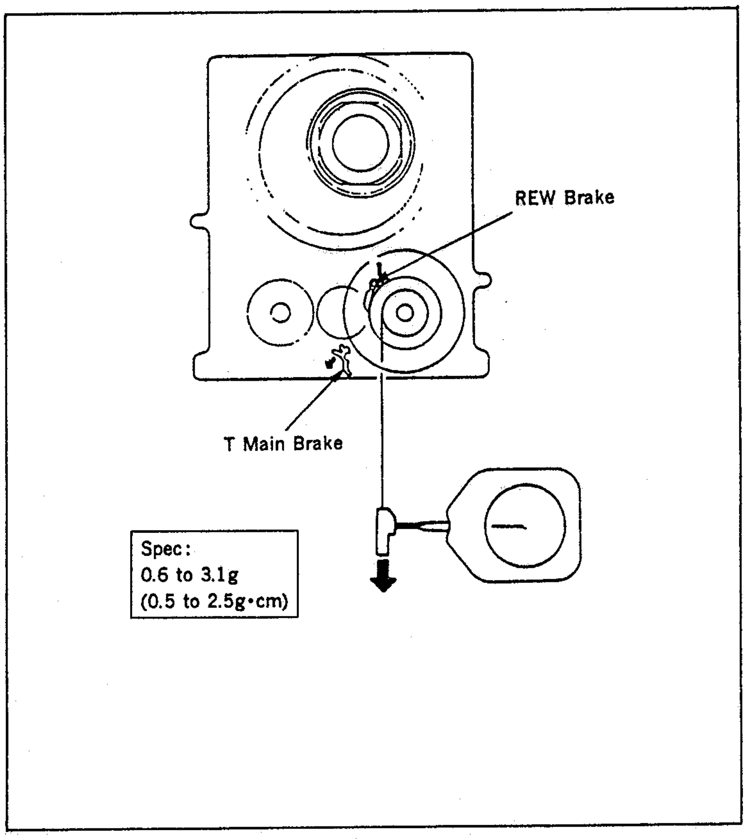
Mode: Press the M-mode select button of the Mode Selector and set to the FF/REW mode.

Check procedure:

(1) Set the Tension Measurement Reel on the T Reel Table and put the Dial Tension Gauge at the end of the string.
(2) Release the T Main Brake by hand.
(3) While the releasing the T Main Brake, pull out the Dial Tension Gauge in the direction of the arrow. Check that this reading meet the required specification.

Adjustment Procedure:

(1) Adjust the strength of the tension spring by streching or cutting, or replace the REW Brake with a new one.



7-3-4. ·CHECK BY THE FWD, RVS TAKE-UP TORQUE CASSETTE

Tool: FWD, RVS take-up torque cassette
(Ref. No. J-12)

Mode: PLAY mode

Check Procedure:

(1) Insert the FWD, RVS take-up torque cassette in the unit.
(2) Put the unit into the PLAY mode, check that the torque reading of the T Reel Table meets the required specification.

Spec. : 9.5 to 15.5 g.cm

(3) Put the unit into the PLAY mode and press the REW button. Immediately check that the torque reading of the S Reel Table meets the required specification.

Spec. : 17 to 23 g.cm

Adjustment procedure:

(1) If the readings do not meet the required specifications, replace each Reel Table Assembly.

7-3-5. FWD BACK TENSION ADJUSTMENT

Tools: Mode Selector (Ref. No. J-13)
Tension Measurement Reel
(Ref. No. J-7)
Dial Tension Gauge (Ref. No. J-6)

Mode: Press the L-mode select button of the Mode Selector and set to the LOADING END Press the M-mode select button and set to the FWD mode.

Check Procedure:

(1) Remove the Cassette-up Compartment referring to Section 2–15.

(2) Press the L-mode select button of the Mode Selector and set to the LOADING END mode. Press the M-mode select button and set to the FWD mode.

(3) Loosen the fixing screw and move the Band Adjustment Plate in the direction of the arrow A. Check the possible movement range θ of the No. 1 Guide.

(4) Tighten the fixing screw where the No. 1 Guide Cap is positioned at one-third of θ .

(5) Set the Tension Measurement Reel on the S Reel Table and trail the tape along the No. 1 Guide, No. 2 Guide, No. 3 Guide, IP Roller Guide and Drum.

(6) Put the Dial Tension Geauge at the end of the tape. Pull out the Dial Tension Gauge at a contact speed approx. 15cm/sec. in the direction of the arrow B. At this time, check that this reading meets the required specification.

Spec. : 12 to 14 g

Adjustment Procudure:

(1) If the reading do not meet the required specification, change the position of the tension spring which is hooked to the Tension Regulator Spring Hook Assembly.
- more than the Spec. :
  the direction of the arrow C
- less than the Spec. :
  the direction of the arrow D

NOTE:

When replacing the parts as follows, perform the FWD Back Tension Adjustment.
- Tension Regulator Band Assembly
- S Reel Table Assembly
- Entrance Guide (P) Assembly

When replacing these parts, perform the free running in the FWD mode for two minutes and then adjust the FWD Back Tension.

Adjustment Procudure:

(1) Install the Cassette-up Compartment Assembly with Removal Steps Section 2–15 in reverse order.

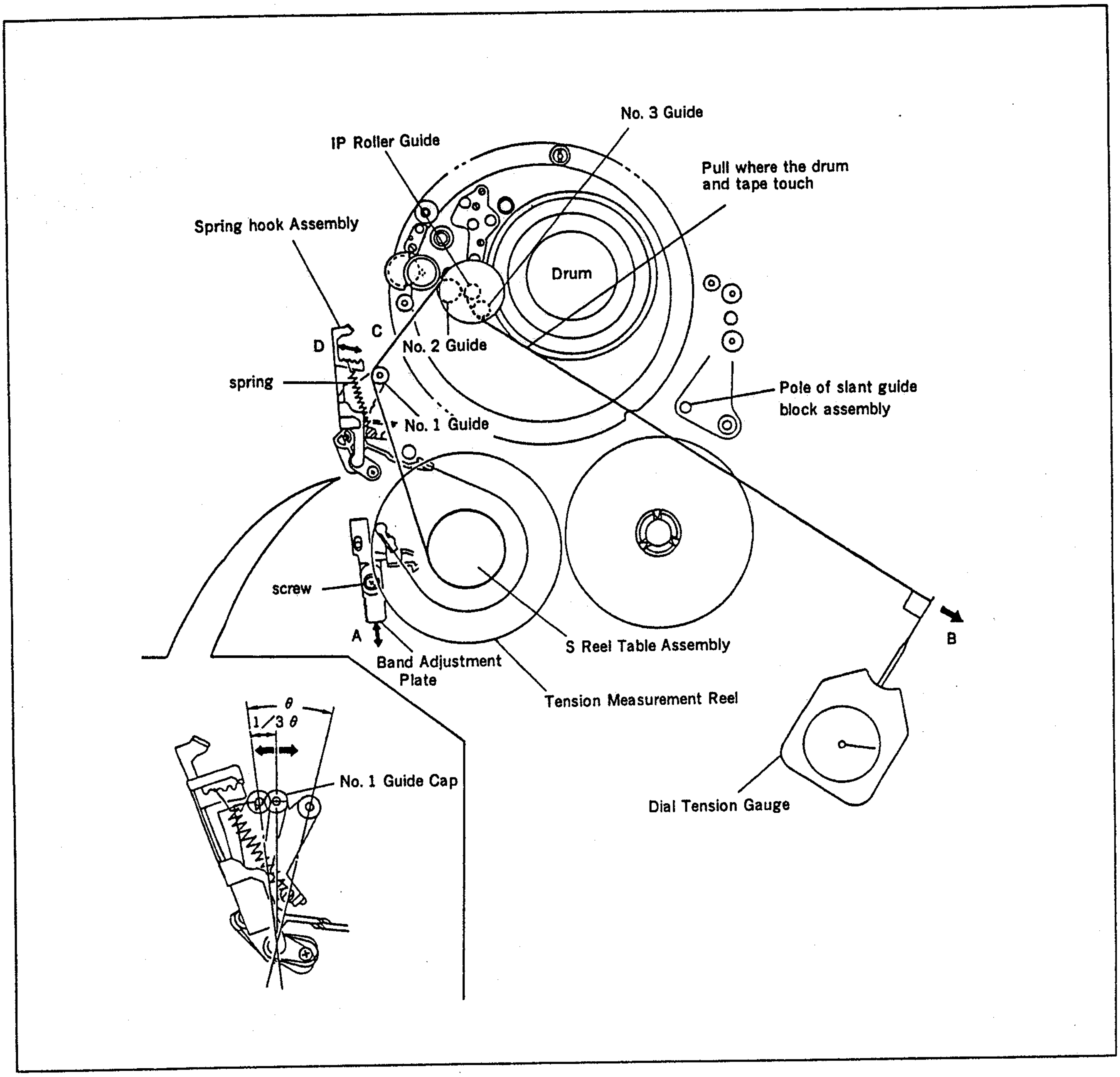
(2) Install the Mechanical Deck with Removal Steps Section 2–6 in reverse order.

(3) Insert the cassette tape in the unit and perform the FWD running for two minutes.

(4) Eject the cassette tape.

(5) Remove the Mechanical Deck from the unit referring to Section 2–6.

(6) Perform the FWD Back Tension Adjustment referring to Section 7-3-5.


No. 3 Guide
IP Roller Guide
Pull where the drum and tape touch
Spring hook Assembly
Drum
C
D
No. 2 Guide
spring
No. 1 Guide
Pole of slant guide block assembly
screw
A
Band Adjustment Plate
S Reel Table Assembly
Tension Measurement Reel
B
θ
1/3 θ
No. 1 Guide Cap
Dial Tension Gauge

7-4. TAPE PATH ADJUSTMENT

After check that the Electrical Adjustments (Sections 8) are completed, perform this adjustment.

Alignment Information

Track Shift Tool

The 8 mm Video System employs a high precision tracking ATF (Auto Track Finding) system which instantaneously controls the tape running speed with four kinds of pilot signals. In this way, the Tracking Adjustment Knob is unnecessary and it is possible to trace with accuracy. On the other hand, the adjustment of the Tape Path System was difficult in the ATF system. It was impossible to adjust perfectly because the ATF system automatically corrected even it small miss-tracking occurs. Then the Track Shift Tool (Ref. No. J-14) is used in the adjustment of Tape Path System. The Track Shift Tool can forcibly release the ATF system and can easly adjust the Tape Path System by setting the tracking amout (track shift) manually.

7-4-1. CONNECTION OF THE TRACK SHIFT TOOL

Use the connection cords (Ref. No. J-15 and J-16) for connection. Connect the Track Shift Tool and the unit as shown in figure 1.

. RF/SWP connector ...
  to CN004 on the FR-43 Board

. CTL connector ...
  to CN906 on the SE-10 Board

(Please refer to operation manual of the Track Shift Tool for details.)

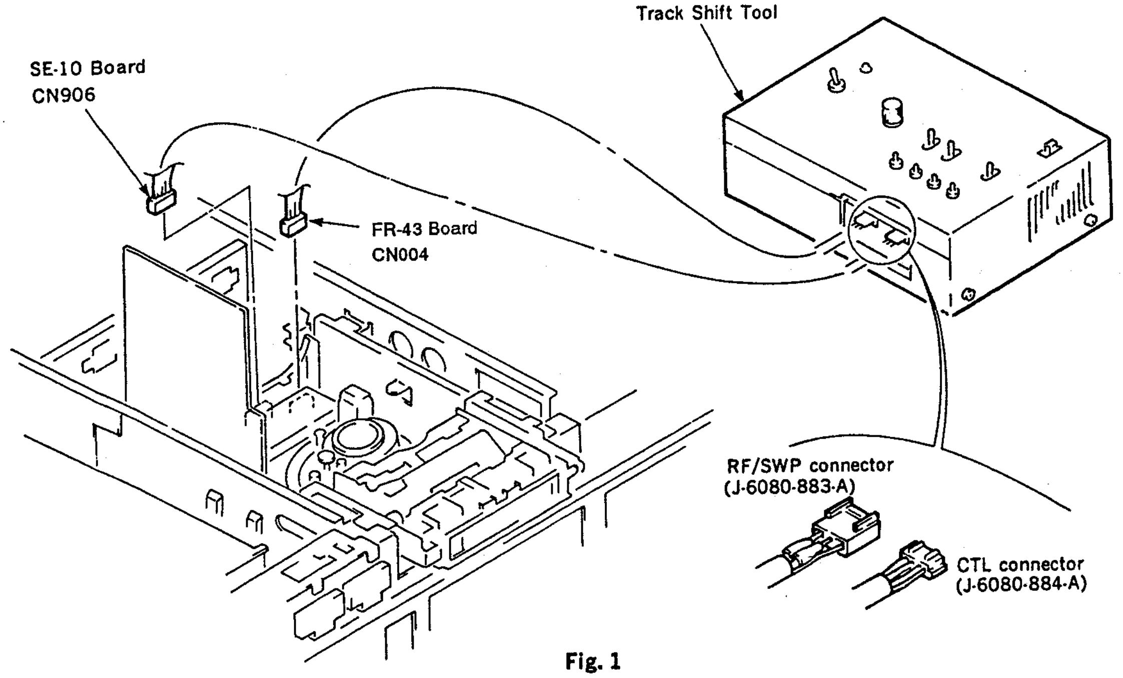
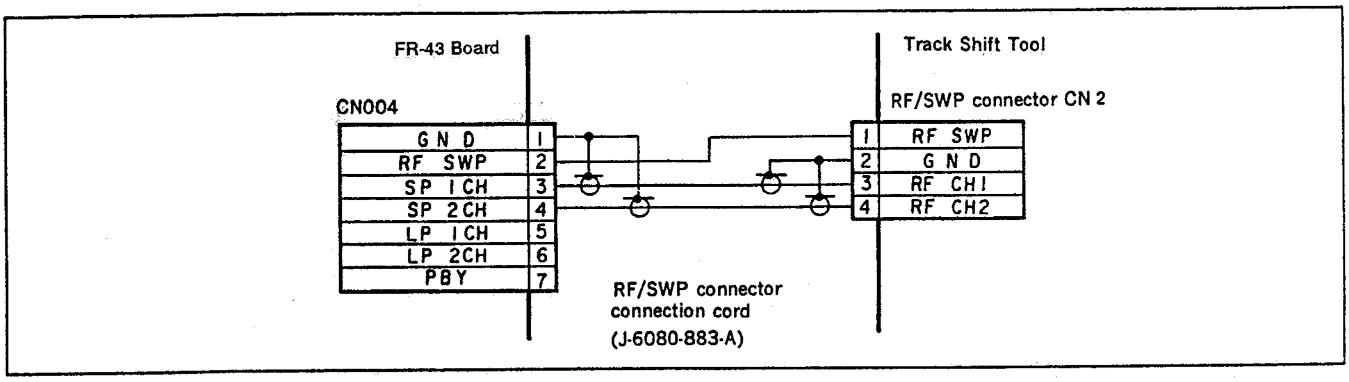


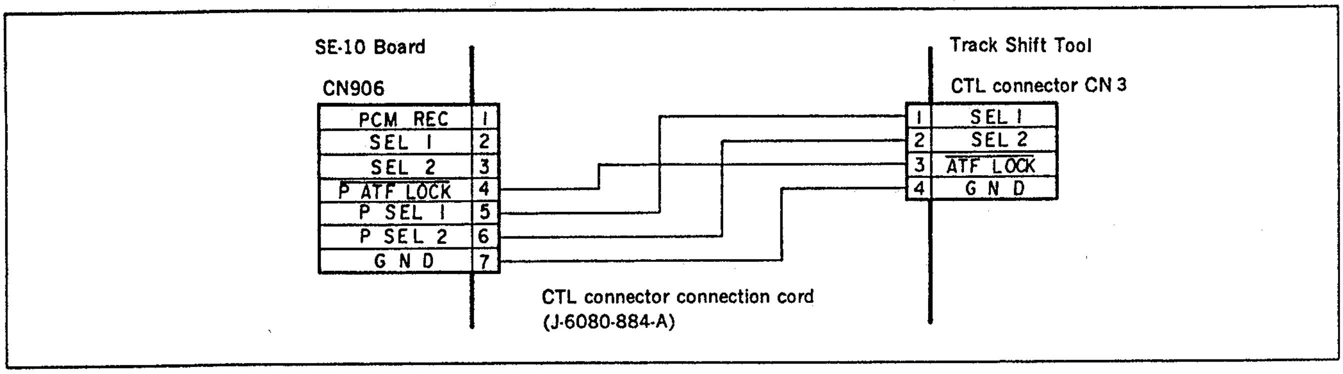
Fig. 1

[Designated Connecting Cord]

- RF/SWP connector connection cord
  (Part No. J-6080-883-A)


FR-43 Board
CN004
G N D 1
RF SWP 2
SP 1CH 3
SP 2CH 4
LP 1CH 5
LP 2CH 6
PBY 7
Track Shift Tool
RF/SWP connector CN 2
1 RF SWP
2 G N D
3 RF CH1
4 RF CH2
RF/SWP connector connection cord (J-6080-883-A)

- CTL connector connection cord
  (Part No. J-6080-884-A)


SE-10 Board
CN906
PCM REC 1
SEL 1 2
SEL 2 3
P ATF LOCK 4
P SEL 1 5
P SEL 2 6
G N D 7
Track Shift Tool
CTL connector CN 3
1 SEL 1
2 SEL 2
3 ATF LOCK
4 G N D
CTL connector connection cord (J-6080-884-A)

[Setting of the Switches]

SEL switch

When adjusting EVO–9650P, the other switches are switch to ON. When setting to OFF, the unit side controls.

PATTERN swich

Set to EV side.

ATF ADJ

Set to OFF side.

When adjusting EVO–9650P, the other switches are not used.

7-4-2. PREPARATION FOR ADJUSTMENT

Tools: Track Shift Tool (Ref. No. J-14)
RF/SWP connector (Ref. No. J-15)
CTL connector (Ref. No. J-16)
Oscilloscope
Alignment tape for tracking
(WR5-1CP) (Ref. No. J-5)

(1) Clean the tape path surface (the individual tape guides, drum, capstan shaft and pinch roller).

(2) Connection of the oscilloscope
1CH: CH2 checking pin of the Track Shift Tool
EXT TRIG: RF SWP checking pin of the Track Shift Tool

(3) Set the SEL switch of the Track Shift Tool to OFF and play back the alignment tape for tracking (WR5-1CP).
Check that the RF waveforms of both entrance and exit sides are flat. (fig. 1 ⓐ) If the RF waveforms of both sides are not flat, adjust them as follows.
- In case of the RF waveform at the entrance side is not flat. (fig. 1 ⓑ)
  ... Perform entrance Side Adjustment referring to Section 7-4-4.
- In case of the RF wavefrom at the exit side is not flat. (fig. 1 ⓒ)
  ... Perform Exit Side Adjustment referring to Section 7-4-5.

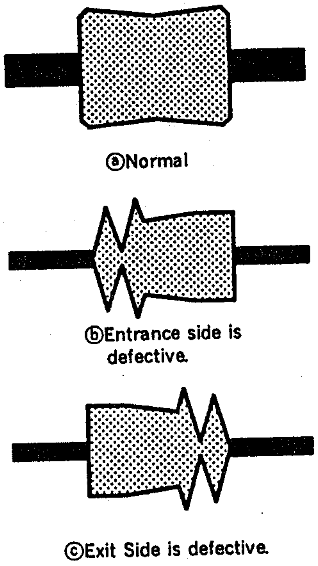


Fig. 1

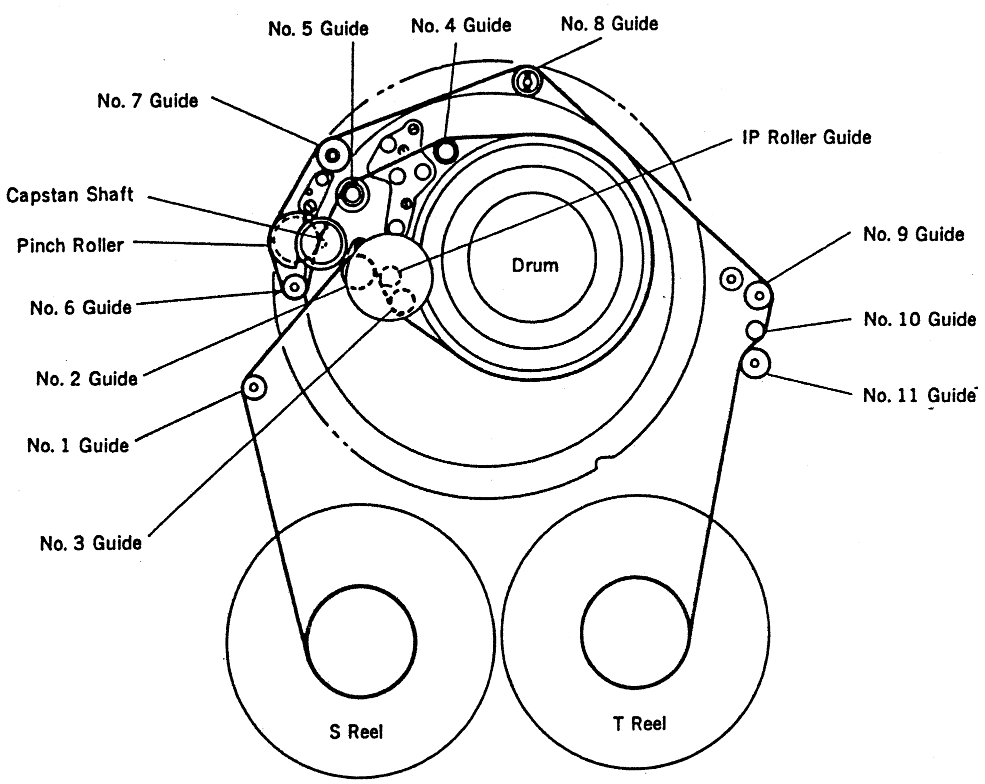
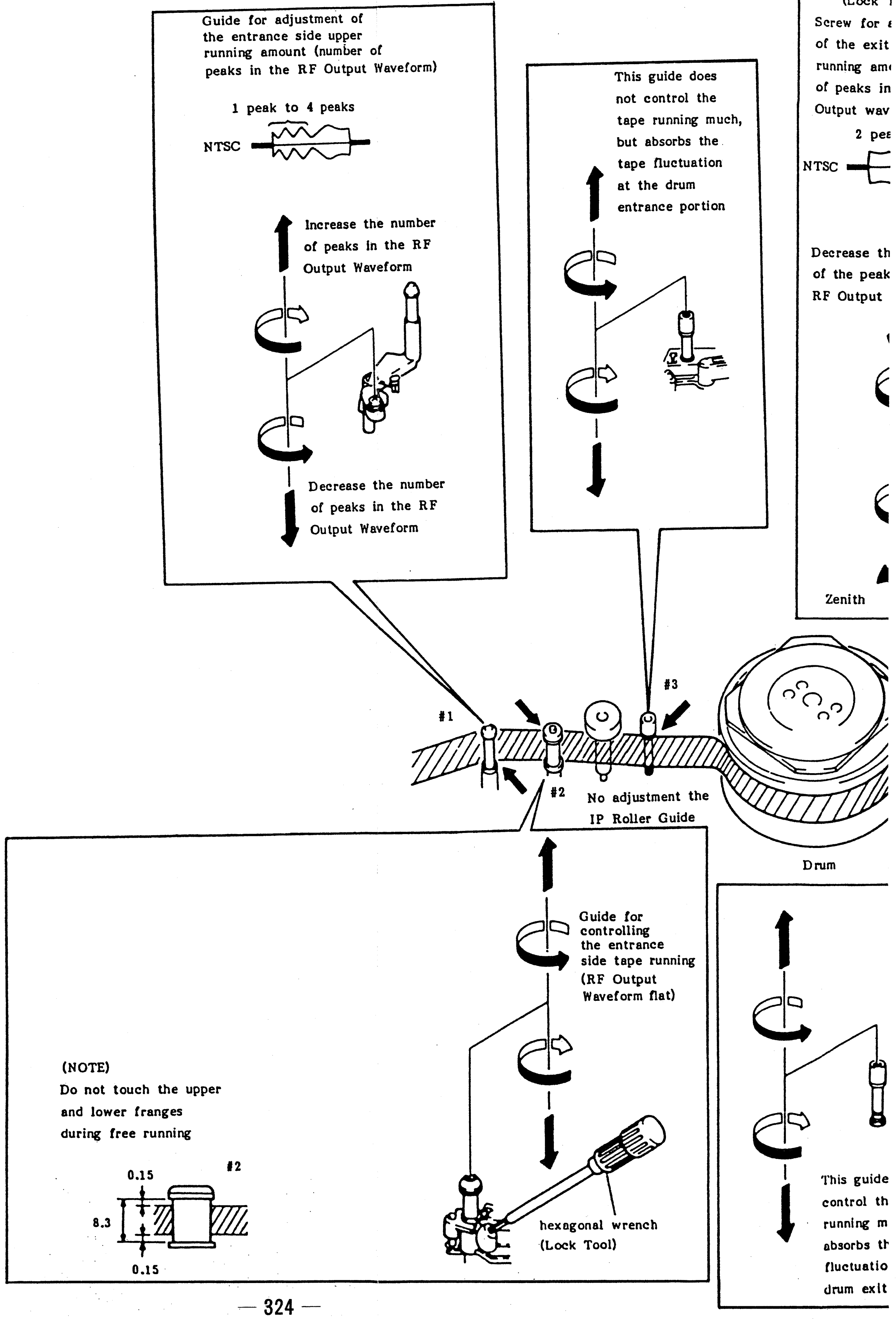

No. 5 Guide
No. 4 Guide
No. 8 Guide
No. 7 Guide
IP Roller Guide
Capstan Shaft
Pinch Roller
Drum
No. 9 Guide
No. 6 Guide
No. 10 Guide
No. 2 Guide
No. 11 Guide
No. 1 Guide
No. 3 Guide
S Reel
T Reel

Fig. 2 Tape Guide Arrangement Diagram

7-4-3. TAPE PATH SYSTEM ADJUSTMENT TABLE


1 peak to 4 peaks
NTSC
#1
#2
#3
Drum
#2
0.15
8.3
0.15
2 pea
NTSC
Zenith

Guide for adjustment of the entrance side upper running amount (number of peaks in the RF Output Waveform)

Increase the number of peaks in the RF Output Waveform

Decrease the number of peaks in the RF Output Waveform

This guide does not control the tape running much, but absorbs the tape fluctuation at the drum entrance portion

flatbrac
(Lock T
Screw for a
of the exit
running am
of peaks in
Output wav

Decrease th
of the peak
RF Output

No adjustment the IP Roller Guide

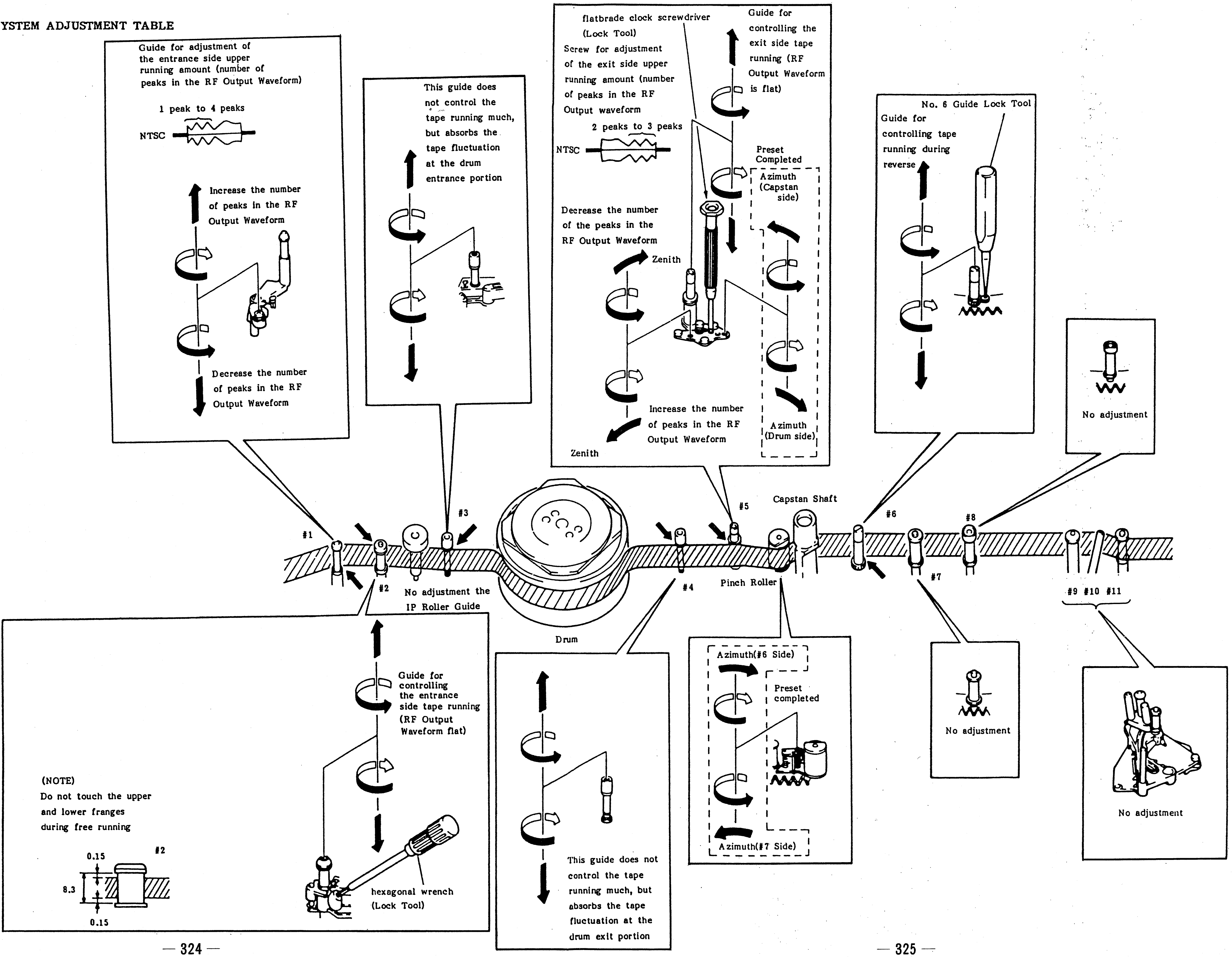
Guide for controlling the entrance side tape running (RF Output Waveform flat)

(NOTE)
Do not touch the upper and lower franges during free running

hexagonal wrench (Lock Tool)

This guide
control th
running m
absorbs th
fluctuatio
drum exit

7-4-3. TAPE PATH SYSTEM ADJUSTMENT TABLE



Guide for adjustment of the entrance side upper running amount (number of peaks in the RF Output Waveform)

1 peak to 4 peaks

NTSC

Increase the number of peaks in the RF Output Waveform

Decrease the number of peaks in the RF Output Waveform

This guide does not control the tape running much, but absorbs the tape fluctuation at the drum entrance portion

flatbrade clock screwdriver (Lock Tool)

Screw for adjustment of the exit side upper running amount (number of peaks in the RF Output waveform)

2 peaks to 3 peaks

NTSC

Decrease the number of the peaks in the RF Output Waveform

Increase the number of peaks in the RF Output Waveform

Guide for controlling the exit side tape running (RF Output Waveform is flat)

Preset Completed

Azimuth (Capstan side)

Azimuth (Drum side)

No. 6 Guide Lock Tool

Guide for controlling tape running during reverse

No adjustment

(NOTE)
Do not touch the upper and lower franges during free running

Guide for controlling the entrance side tape running (RF Output Waveform flat)

hexagonal wrench (Lock Tool)

This guide does not control the tape running much, but absorbs the tape fluctuation at the drum exit portion

Azimuth(#6 Side)

Preset completed

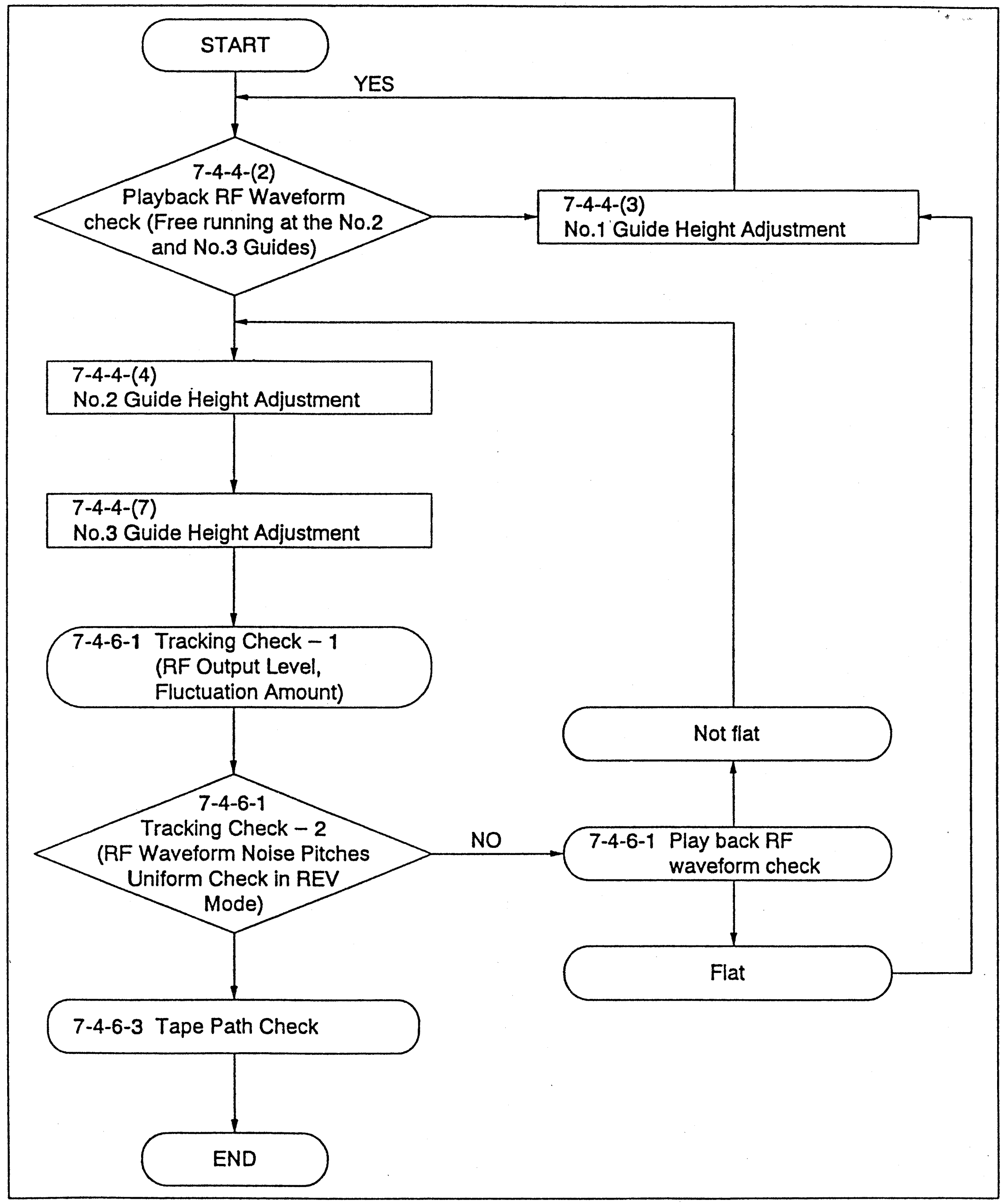
Azimuth(#7 Side)

No adjustment

No adjustment

7-4-4. Tape Entrance Side Adjustment

Flow Chart of Adjustment


START
YES
7-4-4-(2) Playback RF Waveform check (Free running at the No.2 and No.3 Guides)
7-4-4-(3) No.1 Guide Height Adjustment
7-4-4-(4) No.2 Guide Height Adjustment
7-4-4-(7) No.3 Guide Height Adjustment
7-4-6-1 Tracking Check – 1 (RF Output Level, Fluctuation Amount)
Not flat
7-4-6-1 Tracking Check – 2 (RF Waveform Noise Pitches Uniform Check in REV Mode)
NO
7-4-6-1 Play back RF waveform check
Flat
7-4-6-3 Tape Path Check
END

Mode: Play back the alignment tape

Tools: Alignment tape for tracking (WR5–1CP) (Ref. No. J–5)
Oscilloscope
Track Shift Tool (Ref. No. J-14)
RF/SWP connector (Ref. No. J-15)
CTL connector (Ref. No. J-16)
Hexagonal screwdriver (across flat has 0.89 mm) (Ref. No J-17)
Small adjustment mirror (Ref. No. J-4)

Preparation:

(i) Remove the Top Plate referring to Section 2-1.

(ii) Open the MB-19 Board referring to Section 2–10.

(iii) Connect the Track Shift Tool and oscilloscope to the unit referring to Sections 7-4-1 and 7-4-2.

(iv) Play back the alignment tape.

Procedure:

(1) Remove the Fly Wheel referring to Section 7–2–2.

(2) Loosen the No. 2 Guide Lock Screw and turn the No. 2 and No. 3 Guides counterclockwise to free the tape path at the entrance side. (fig. 1 and 2)

Note: The space between upper and lower flanges of the No. 2 Guide is narrow. Therefore, then check that the tape is not touch the upper and lower flanges. If loosen the No. 2 Guide too much, the tape touches the lower flange and the RF waveform at the entrance side exceeds the original free waveform.

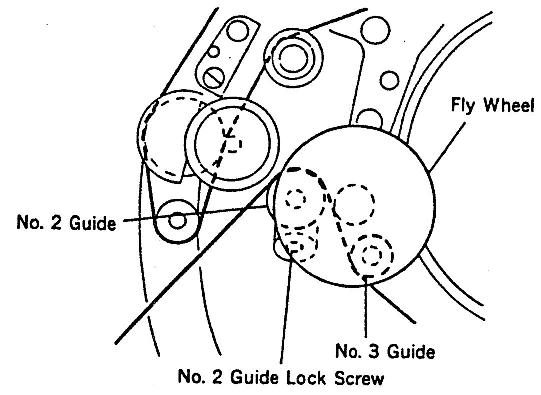

Fly Wheel
No. 2 Guide
No. 3 Guide
No. 2 Guide Lock Screw

Fig. 1

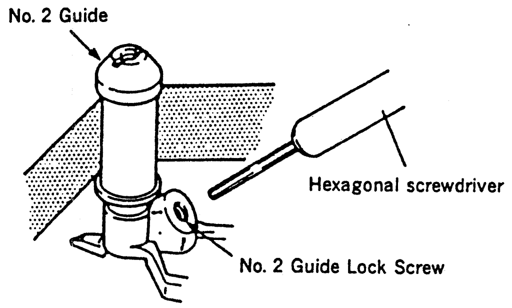

No. 2 Guide
Hexagonal screwdriver
No. 2 Guide Lock Screw

Fig. 2

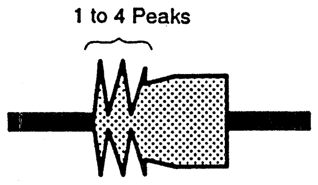


Fig. 3

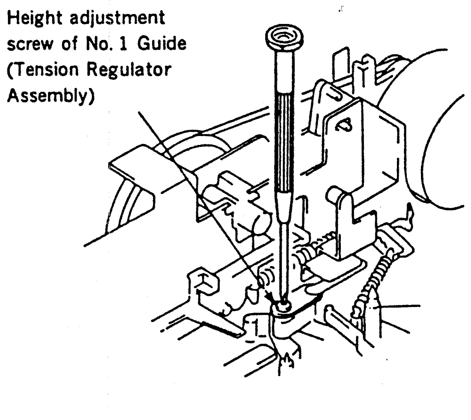

Height adjustment screw of No. 1 Guide (Tension Regulator Assembly)

Fig. 4

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(6) Tı
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(7) Fl
Gı

(8) Ti
Gı

(9) Sı
1
tc

(10) Ir
Se

Note:

Mode: Play back the alignment tape

Tools: Alignment tape for tracking
(WR5–1CP) (Ref. No. J–5)
Oscilloscope
Track Shift Tool (Ref. No. J-14)
RF/SWP connector (Ref. No. J-15)
CTL connector (Ref. No. J-16)
Hexagonal screwdriver (across flat has 0.89 mm) (Ref. No J-17)
Small adjustment mirror (Ref. No. J-4)

Preparation:

(i) Remove the Top Plate referring to Section 2-1.

(ii) Open the MB-19 Board referring to Section 2–10.

(iii) Connect the Track Shift Tool and oscilloscope to the unit referring to Sections 7-4-1 and 7-4-2.

(iv) Play back the alignment tape.

Procedure:

(1) Remove the Fly Wheel referring to Section 7–2–2.

(2) Loosen the No. 2 Guide Lock Screw and turn the No. 2 and No. 3 Guides counterclockwise to free the tape path at the entrance side. (fig. 1 and 2)

Note: The space between upper and lower flanges of the No. 2 Guide is narrow. Therefore, then check that the tape is not touch the upper and lower flanges. If loosen the No. 2 Guide too much, the tape touches the lower flange and the RF waveform at the entrance side exceeds the original free waveform.

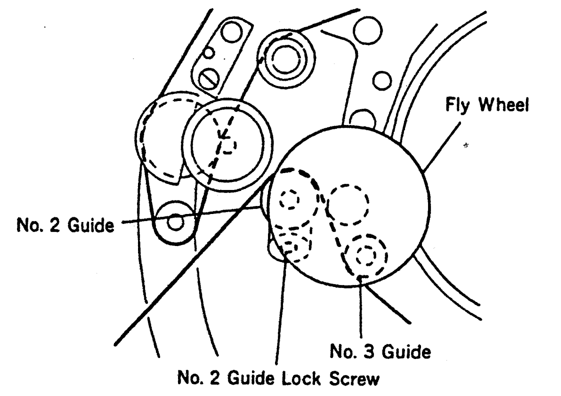

Fly Wheel
No. 2 Guide
No. 3 Guide
No. 2 Guide Lock Screw

Fig. 1

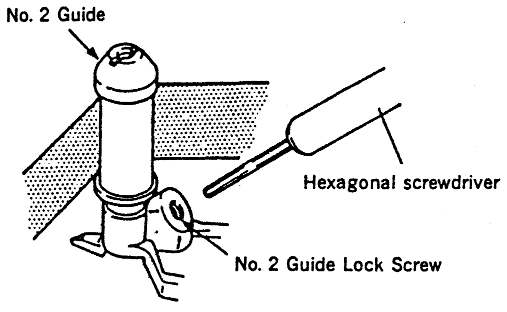

No. 2 Guide
Hexagonal screwdriver
No. 2 Guide Lock Screw

Fig. 2

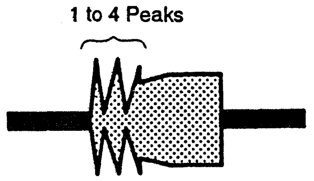


Fig. 3

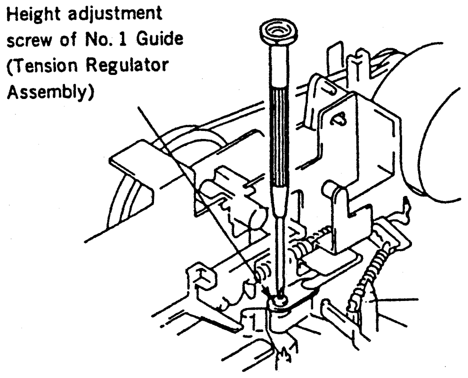

Height adjustment screw of No. 1 Guide (Tension Regulator Assembly)

Fig. 4

(3) Check that the RF waveform at the entrance side has 1 to 4 peaks in this condition. If not, adjust as follows. (fig. 3)

- less than 1 peak
  Turn and adjust the height adjustment screw of the No. 1 Guide (Tension Regulator Arm Assembly) clockwise 90 degrees step. (fig. 4)
- more than 4 peaks
  Turn and adjust the height adjustment screw counterclockwise 90 degrees step. (fig. 4)

(4) Turn slowly the No. 2 Guide clockwise so that flatten the waveform at the entrance side. (fig. 5)

Note: At this time, do not turn the No. 2 Guide too much.

(5) Set the SEL switch of the Track Shift Tool to ON. Turn the Track Shift Knob and set the amplitude of the RF waveform to two-third position. (fig. 6)

(6) Turn the No. 2 Guide and raise the entrance side waveform sightly. (fig. 7)

(7) Flatten the waveform with the No. 3 Guide. (fig. 8)

(8) Tighten the lock screw of the No. 2 Guide. (fig. 2)

(9) Smear locking compound to the No. 1 Guide Height Adjustment Screw and top porsion of the No. 3 Guide.

(10) Install the Fly Wheel referring to Section 7–2–2.

Note: After adjustment, perform Check After Adjustment referring to Section 7-4-6.

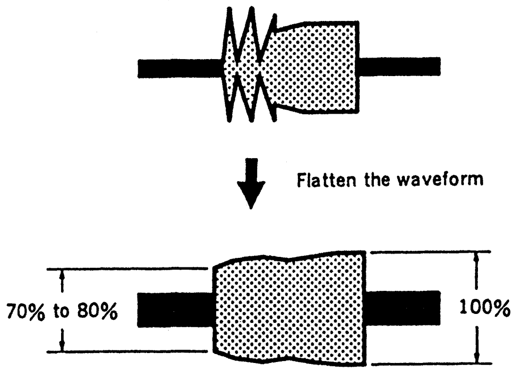

Flatten the waveform
70% to 80%
100%

Fig. 5

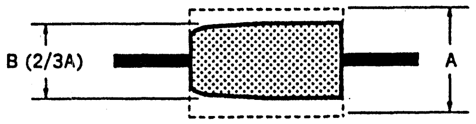
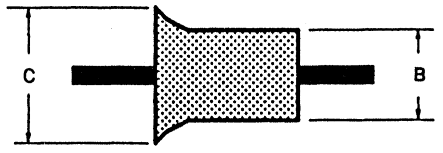


Fig. 6



C=1.15B to 1.25B

Fig. 7

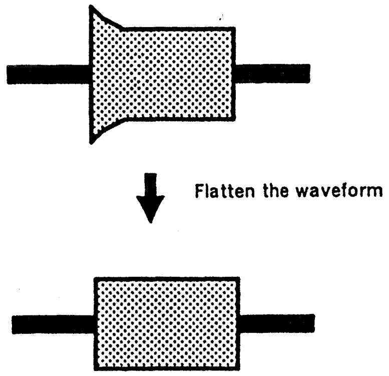
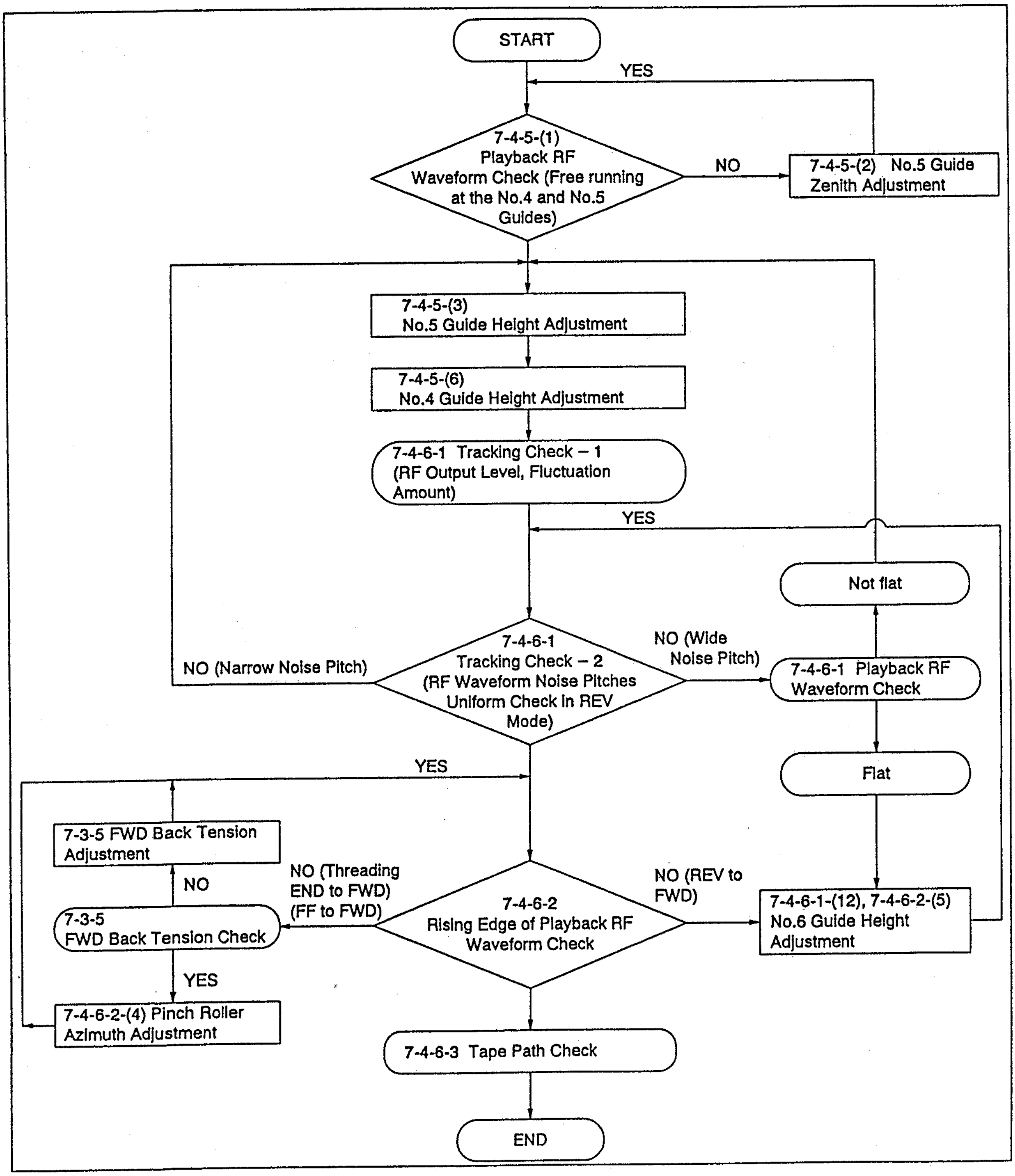

Flatten the waveform

Fig. 8

7-4-5. Tape Exit Side Adjustment

Flow Chart of Adjustment


START
YES
7-4-5-(1) Playback RF Waveform Check (Free running at the No.4 and No.5 Guides)
NO
7-4-5-(2) No.5 Guide Zenith Adjustment
7-4-5-(3) No.5 Guide Height Adjustment
7-4-5-(6) No.4 Guide Height Adjustment
7-4-6-1 Tracking Check – 1 (RF Output Level, Fluctuation Amount)
YES
Not flat
NO (Narrow Noise Pitch)
7-4-6-1 Tracking Check – 2 (RF Waveform Noise Pitches Uniform Check in REV Mode)
NO (Wide Noise Pitch)
7-4-6-1 Playback RF Waveform Check
Flat
YES
7-3-5 FWD Back Tension Adjustment
NO
NO (Threading END to FWD) (FF to FWD)
7-3-5 FWD Back Tension Check
7-4-6-2 Rising Edge of Playback RF Waveform Check
NO (REV to FWD)
7-4-6-1-(12), 7-4-6-2-(5) No.6 Guide Height Adjustment
YES
7-4-6-2-(4) Pinch Roller Azimuth Adjustment
7-4-6-3 Tape Path Check
END

Mode: Play back the alignment tape

Tools: Alignment tape for tracking (WR5–1CP) (Ref. No. J–5)

Oscilloscope

Track Shift Tool (Ref. No. J-14)

RF/SWP connector (Ref. No. J-15)

CTL connector (Ref. No. J-16)

Hexagonal screwdreiver (across flat has 0.89 mm) (Ref. No. J-17)

Small adjustment mirror (Ref. No. J-4)

Preparation:

(i) Remove the Top Plate referring to Section 2-1.

(ii) Open the MB-19 board referring to Section 2–10.

(iii) Connect the Track Shift Tool and oscilloscope to the unit referring to Sections 7-4-1 and 7-4-2.

(iv) Play back the alignment tape.

Procedure:

(1) Turn the No. 4 and No. 5 Guides counterclockwise to free the tape path at the exit side. (fig. 1)

Note: If the No. 5 Guide nut is not loosen because of locking compound, dissolve locking compound with alcohol. Check that the tape does not touch the lower flange of the No. 5 Guide in free running.

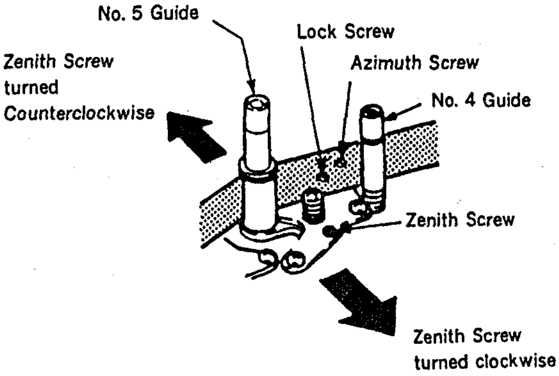

No. 5 Guide
Lock Screw
Zenith Screw turned Counterclockwise
Azimuth Screw
No. 4 Guide
Zenith Screw
Zenith Screw turned clockwise

Fig. 1

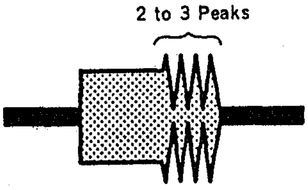


Fig. 2

(2) Check that the RF waveform at the exit side has 2 to 3 peaks in this condition. If not, adjust as follows. (fig. 2)

- Turn and loosen the lock screw counterclockwise.
- less than 2 peaks
  Turn and adjust slowly the zenith screw clockwise 45 degrees step.
- more than 3 peaks
  Turn and adjust slowly the zenith screw of the No. 5 Guide counterclockwise 45 degrees step.

After adjustment, tighten the lock screw clockwise.(fig. 1)

Note: If tighten the lock screw too strongly, the waveform will change. Tighten suitably the lock screw. Never turn the azimuth screw of the No. 5 Guide.

(3) Turn the No. 5 Guide clockwise and flatten the RF waveform at the exit side. (fig. 3)

Note: At this time, the waveform reaction is slow against the nut rotation. After checking that the waveform variation is stabilized, turn the nut more.

(4) Set the SEL switch of the Track Shift Tool to ON. Turn the Track Shift Knob and set the amplitude of the RF waveform to two-third position. (fig. 4)

(5) Turn the No. 5 Guide and raise the exit side waveform sightly. (fig. 5)

(6) Turn the No. 4 Guide and flatten the waveform. (fig. 6)

(7) Smear locking compound to the lock screw, zenith screw and top portions of the No. 4 Guide and No. 5 Guide.

Note: After adjustment, perform Check After Adjustment referring to Section 7-4-6.

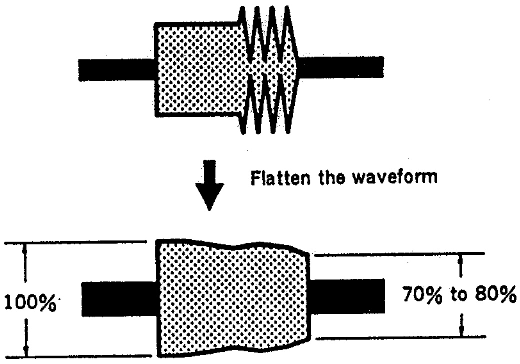


Fig. 3

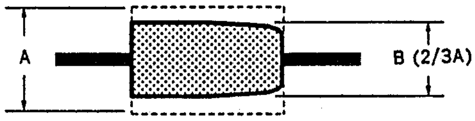
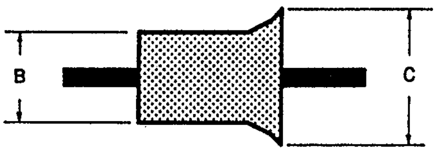


Fig. 4



C=1.15B to 1.25B

Fig. 5

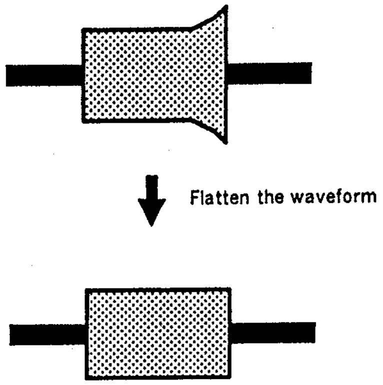


Fig. 6

7-4-6. CHECK AFTER ADJUSTMENT

Tool: No. 6 Guide Lock Screwdriver (Ref. No. J-10)
Alignment tape for tracking
(WR5–1CP) (Ref. No. J–5)

1. Video Tracking Check

(1) Play back the alignment tape for tracking.

(2) Set the SEL switch of the Track Shift Tool to ON. Turn the Track Shift Knob and set the amplitude of the RF waveform to two-third position. (fig. 1)

(3) In this time, check that the amplitude minimum value (E MIN) of the RF waveform is more than 75% of maximum value (E MAX). (fig. 2)

(4) In this time, check that the fluctuation amount of th RF waveform at entrance and exit sides meet the reguired specification as shown in figure. 3.

(5) Set the SEL switch of the Track Shift Tool to OFF.

(6) Set to the REV mode and check that the noise pitches of the waveform are uniform. (fig. 4) If not, adjust as follows.

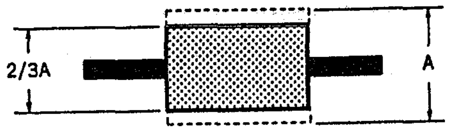


Fig. 1

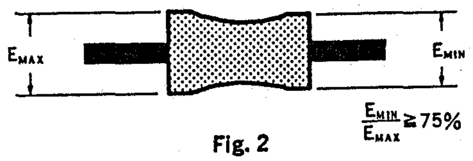


Fig. 2

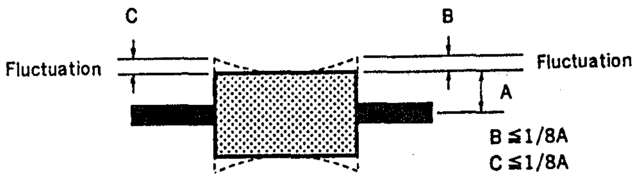
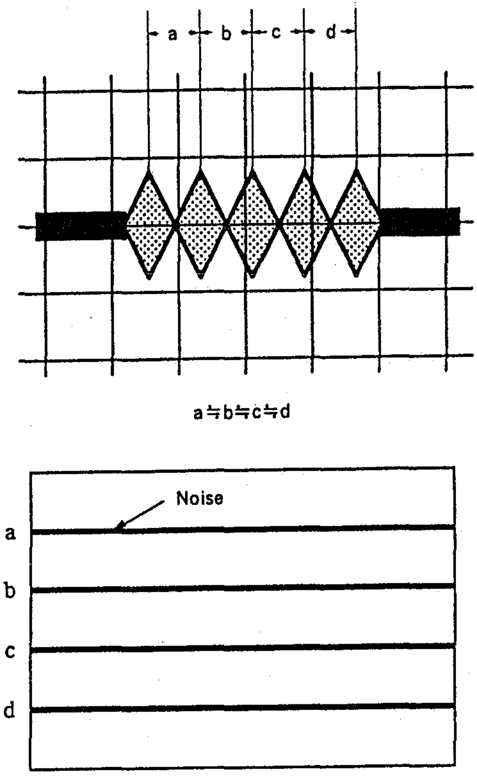


Fig. 3



a≒b≒c≒d

Screen

Fig. 4

When the Noise pitch is narrow at the entrance side (upper of screen). (fig. 5)

(7) Check that the RF waveform is flat in the PLAY mode.

(8) Perform the height adjustment of the No. 1 Guide referring to Section 7-4-4.

Note: After adjustment, perform the Tracking Check referring to Section 7-4-6-1.

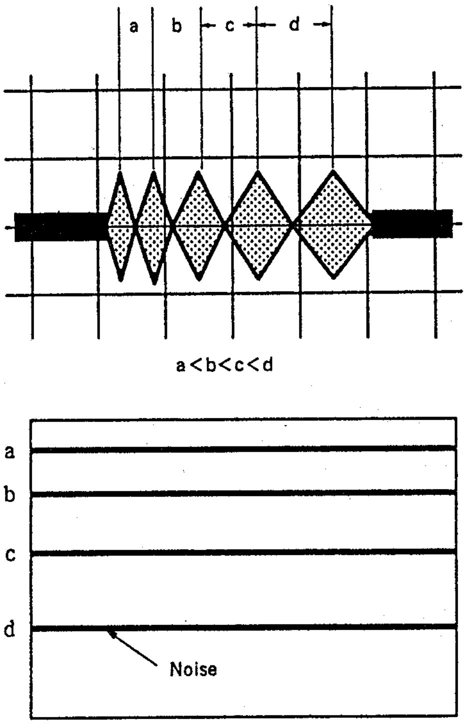
When the RF waveform is not flat.

(9) Perform the height adjustment of the No. 2 and No. 3 Guides referring to Section 7-4-4.

Note: After adjustment, perform the Tracking Check referring to Section 7-4-6-1.

When the noise pitch is narrow at the exit side (lower of screen). (fig. 6)

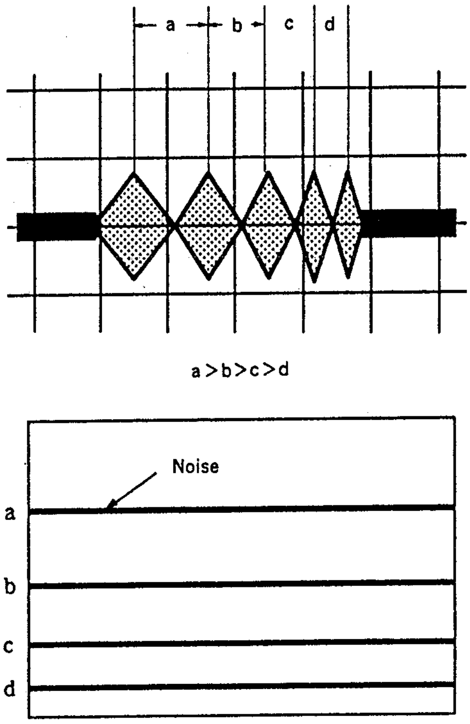
(10) Set to PLAY mode and perform the height adjustment of the No. 4 and No. 5 Guides referring to Section 7-4-5. After adjustment, perform the Tracking Check referring to Section 7-4-6-1 and check that it meet the required specification.



$a<b<c<d$

Screen

Fig. 5



$a>b>c>d$

Screen

Fig. 6

When the noise pitch is wide at the exit side (lower of screen). (fig. 7)

(11) Set to PLAY mode and check that the RF waveform is flat.

(12) Turn and loosen the Guide Lower Gear counterclockwise with the No. 6 guide lock tool. (fig. 8)

(13) Turn the No. 6 Guide and perform the height adjustment.

Note: At this time, if the No. 6 Guide is raised too much, the wrinkles may occur between the Capstan Shaft and No. 5 Guide (A portion). Check that the wrinkes are not occur. (fig. 9)

(14) Turn and *lock the Guide Lower Gear clockwise with the NO. 6 guide lock tool.

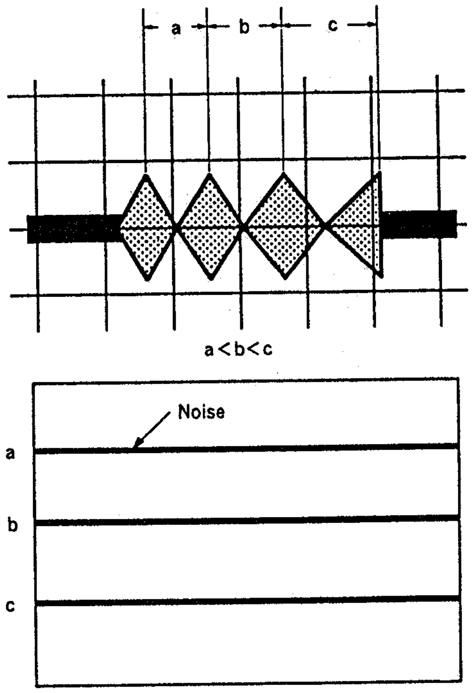
*Touch the Guide Lower Gear against the lower flange of the No. 6 Guide and turn it more about 10 degrees.

Note: After adjustment, perform the Tracking Check referring to Section 7-4-6-1.

When the waveform is not flat.

(15) Perform the height adjustment of the No. 4 and No. 5 Guides referring to Section 7-4-5.

Note: After adjustment, perform the Tracking Check referring to Section 7-4-6-1.



Screen

Fig. 7

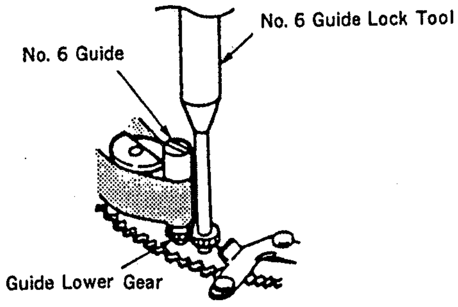


Fig. 8

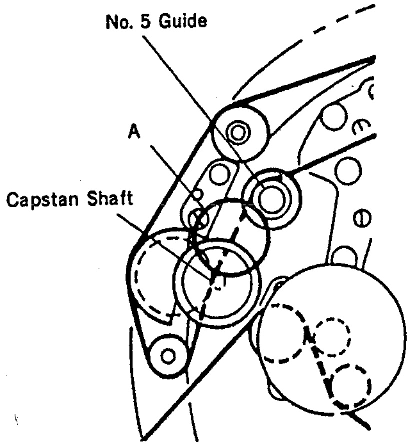


Fig. 9

2. Rising Edge of Waveform Check

(1) Check that the RF waveform rises horizontally (flat waveform) in playback after threading is completed, playback after CUE/REV or FF mode. If the RF waveform do not rise horizontally (flat waveform), adjust as follows.

In case of the noise occurs at the exit side (lower of screen) at the rising edge of the playback, after threading is completed. (fig. 11)

(2) Check that the FWD Back Tension.

When the FWD Back Tension is too low.

(3) Adjust again referring to FWD Back Tension Adjustment of Section 7-3-5.

When the FWD Back Tension is normal.

(4) While adjusting the waveform at the rising edge of the playback, turn the azimuth screw of the Pinch Roller clockwise about 5 degrees step. Then check the rising edge of waveform.

In case of the noise occurs at the exit side (lower of screen) at the rising edge of the playback after REV mode. (fig. 11)

(5) Turn and loosen the Guide Lower Gear counterclockwise with No. 6 guide lock tool. (fig. 8)

(6) Turn the No. 6 Guide and perform the height adjustment.

Note: At this time, if the No. 6 Guide is raised too much, the wrinkles may occur between the Capstan Shaft and No. 5 Guide(A portion). Check that the wrinkes are not occur. (fig. 9)

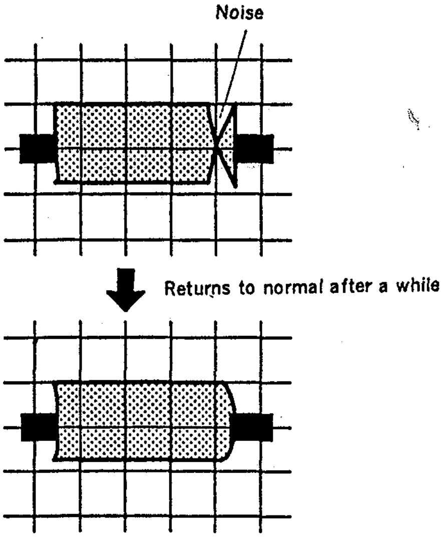


Fig. 11

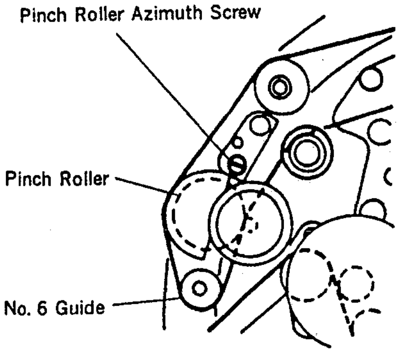


Fig. 12

In case of the noise occurs at the exit side (lower of screen) at the start of the playback after FF mode. (fig. 11)

(7) Check that the FWD Back Tension.

When the FWD Back Tension is too low.

(8) Adjust again referring to FWD Back Tension Adjustment of Section 7-3-5.

When the FWD Back Tension is normal.

(9) While adjusting the waveform at the rising edge of the playback, turn the azimuth screw of the Pinch Roller clockwise about 5 degrees step. Then check the rising edge of waveform. (fig. 12)

Note: After adjustment, be sure to check that waveform again at the rising edge of the playback after threading is completed.

3. Tape Running Check

Check the tape running at the flange of the Guides (shown by arrows) in PLAY and REV modes.

No. 1 Guide No. 2 Guide No. 5 Guide	...	Tape runs in contact with upper or lower flange. If tape curl exist, less than 0.3mm at the tape curl is acceptable.
No. 3 Guide No. 6 Guide	...	Tape runs in contact with upper or lower flange without curl.
No. 4 Guide	...	Tape runs in contact with upper flange. If tape curl exists, less than 0.5mm of tape curl is acceptable.

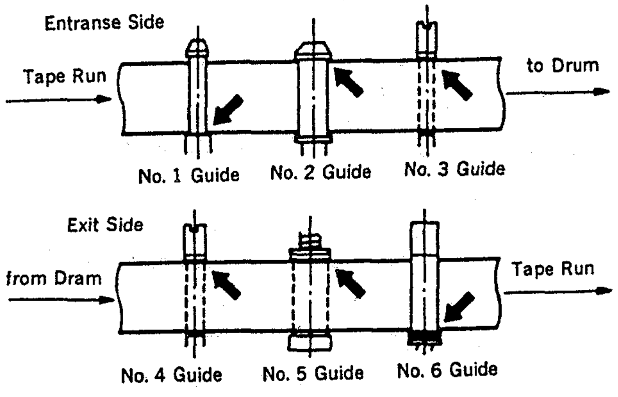

Entranse Side
Tape Run
to Drum
No. 1 Guide
No. 2 Guide
No. 3 Guide
Exit Side
from Dram
Tape Run
No. 4 Guide
No. 5 Guide
No. 6 Guide

Fig. 13

SECTION 8
ELECTRICAL ADJUSTMENT

During the adjustment, see the arrangement for adjustment parts from page 364.

8-1. POWER SUPPLY ADJUSTMENT

8-1-1. Equipment Required

- Digital voltmeter

8-1-2. UNSW +5V Adjustment

Machine condition for adjustment	Specifications	Adjustments
• STANDBY mode	CN008-2/MA-163 5.4 ± 0.1Vdc	⊘VR203/ POWER BLOCK

8-1-3. REG +5V Adjustment

Machine condition for adjustment	Specifications	Adjustments
• E-E mode	CN008-5/MA-163 5.2 ± 0.1Vdc	⊘VR202/ POWER BLOCK

8-1-4. REG +9V Adjustment

Machine condition for adjustment	Specifications	Adjustments
• E-E mode	CN008-10/MA-163 9.0 ± 0.1Vdc	⊘VR201/ POWER BLOCK

8-2. SERVO SYSTEM ADJUSTMENT

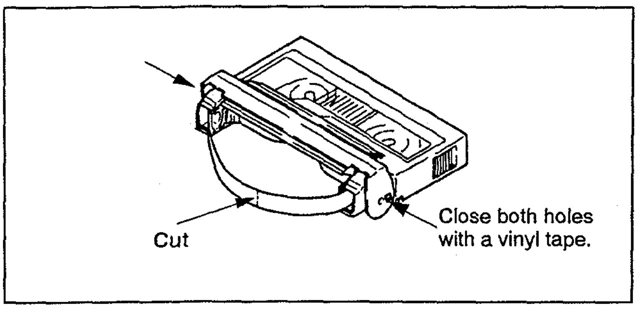
8-2-1. Equipment Required

- Oscilloscope
- Frequency counter
- Digital voltmeter
- Alignment tape

Name (Part No.)	REC mode	Tape Type	Tape Speed	Contents	
				Video Area	PCM Area
SP operation check WR5-8CSE (8-967-995-48)	Hi8	ME	SP	VIDEO SIGNAL Color-bar: 4 min. Monoscope: 4 min. AUDIO SIGNAL (AFM) 400 Hz, 60% modulation	AUDIO SIGNAL (PCM) 400 Hz: 20 min.
LP operation check WR5-8CLE (8-967-995-57)	Hi8	ME	LP	VIDEO SIGNAL Color-bar: 4 min. Monoscope: 4 min. AUDIO SIGNAL (AFM) 400 Hz, 60% modulation	AUDIO SIGNAL (PCM) 400 Hz: 40 min.
Tracking check WR5-1CP (8-967-995-07)	STD	MP	SP	CH2: 1 MHz tape path adjustment signal switching position adjustment marker (CH1: 9 MHz)	

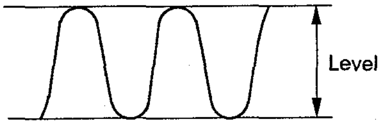
- Empty cassette (See below.)

1. Draw out a tape and cut it.
2. Cover two holes on both side of the cassette with a vinyl tape.



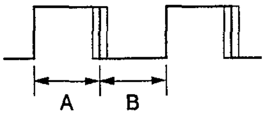
- Extention cord
  - 5 PIN, 2 mm (J-6082-154-A)
    - HK-5 board CN911 ⟷ IF-38 board CN401
  - 6 PIN, 2 mm (J-6082-155-A)
    - HK-5 board CN914 ⟷ IF-38 board CN502
  - 7 PIN, 2 mm (J-6082-156-A)
    - HK-5 board CN912 ⟷ IF-38 board CN501
  - 9 PIN, 2 mm (J-6082-157-A)
    - MB-19 board CN923 ⟷ MA-163 board CN012
  - 12 PIN, 2 mm (J-6082-158-A)
    - SE-10 board CN902 ⟷ FB-201 board CN802
    - SE-10 board CN907 ⟷ MA-163 board CN007
  - 13 PIN, 2 mm (J-6082-159-A)
    - SE-10 board CN903 ⟷ MA-163 board CN802

8-2-2. DS Clock Check

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal • STOP mode	TP107/SE-10 (C-5)  Level=more than 2.5 Vp-p Frequency=4433619 ± 300 Hz	

8-2-3. Capstan FG Duty Adjustment

When adjusting the MD-23 board, remove pin 12 of CN902 and pin 13 of CN903 on the SE-10 board then remove the mechanical block (core block) from the chassis. The VTR is operated by pressing the buttons on the MB-19 board.

Machine condition for adjustment	Specifications	Adjustments
• Connect each TP001 and TP002 on the SE-10 board to ground with jumper wires. • Insert the empty cassette tape and put the machine into the play back mode. • After adjustment, remove the jumper wires.	TP105/SE-10 (D-4)  A ≒ B	⊘ RV801/MD-23 (D-3)

8-2-4. Reel FG Adjustment

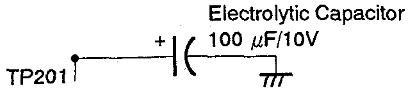
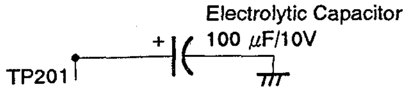
Machine condition for adjustment	Specifications	Adjustments
• Play back the alignment tape WR5-8CLE.	TP901/MD-23 (G-1) 21 ± 1 Hz	⊘ RV901/MD-23 (G-1)
• Perform confirmation while playing back the alignment tape WR5-8CLE.	TP902/MD-23 (E-1) 1.0 through 1.4Vdc	
• Perform confirmation while playing back the alignment tape WR5-8CLE with CUE (×9) mode. CUE (×9): After pressing the PB button, press the FF button on the MB-19 Board.	TP901/MD-23 (G-1) 37 through 50 Hz TP902/MD-23 (E-1) 1.4 through 1.9Vdc	

Note: *After adjustment, install the mechanical deck.*

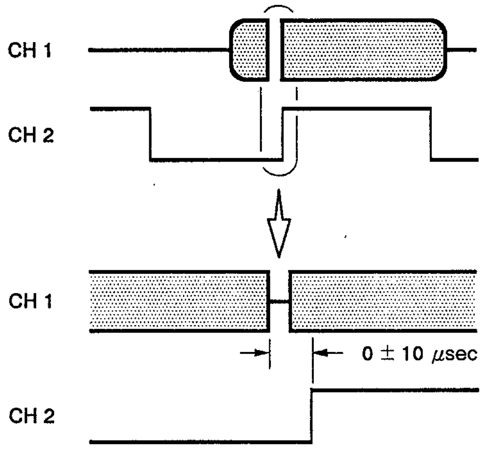
8-2-5. Drum Free Speed Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: No signal • Use the Hi8 MP tape. • REC mode	TP101/SE-10 (D-6) 1.9 ± 0.1Vdc	⊘ RV102/SE-10 (E-6)

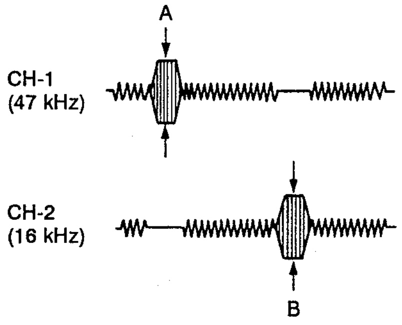
8-2-6. Capstan Free Speed Adjustment

Machine condition for adjustment	Specifications	Adjustments
Step 1 (SP mode) • Connect TP201/SE-10 (H-3) to ground with electrolytic capacitor (100 µF/10V) during STOP mode. (1-123-307-00)  • Connect TP002/SE-10 (D-6) to ground with jumper wire during STOP mode. • Play back the alignment tape WR5-8CSE. • After adjustment, remove the jumper wire and capacitor.	TP105/SE-10 (D-4) 1341 ± 1 Hz	⊘ RV106/SE-10 (D-5)
Step 2 (LP mode) • Connect TP201/SE-10 (H-3) to ground with electrolytic capacitor (100 µF/10V) during STOP mode. (1-123-307-00)  • Connect TP002/SE-10 (D-6) to ground with jumper wire during STOP mode. • Connect pin 4 of CN901/SE-10 (A-5) to ground with jumper wire during STOP mode. • Play back the alignment tape WR5-8CSE. • After adjustment, remove the jumper wire and capacitor.	TP105/SE-10 (D-4) 670 ± 1 Hz	⊘ RV105/SE-10 (D-5)

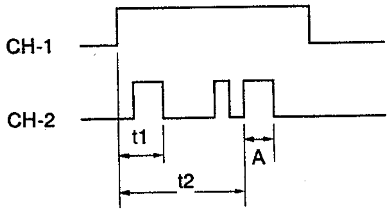
8-2-7. Switching Position Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the alignment tape WR5-1CP.	CH-1: CN004-4/FR-43 (A-2) CH-2: CN004-2/FR-43 (A-2) 	⊘ RV101/SE-10 (C-6) TRIG: CN004-2/FR-43 (A-2)

8-2-8. ATF BPF Balance Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Connect TP208/SE-10 (H-3) to ground with jumper wire. • VIDEO IN : Color-bar signal • Preform the self-recording /play back with a Hi8 ME tape. • After adjustment, remove the jumper wire.	CH-1: IC201-7/SE-10 (G-4) CH-2: IC201-6/SE-10 (G-4)  B=A	⊘ RV201/SE-10 (G-4) TRIG: TP103/SE-10 (F-3)

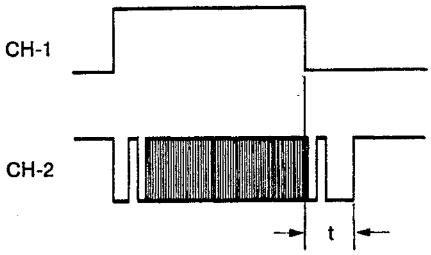
8-2-9. STILL Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN : Color-bar signal • Perform the self-recording/play back with a Hi8 ME tape. • Put the unit into the PAUSE mode and measure the pulse width of A portion. • Advance one frame and perform adjustment if the pulse width of A is narrow. If it is wide, advance the frame for one more frame and perform adjustment by observing narrower pulse width.	CH-1: TP103/SE-10 (F-3) CH-2: TP204/SE-10 (F-5)  t1=4.8 ± 0.1msec t2=13.6 ± 0.1msec	t1 ⊘RV203/SE-10 (H-3) t2 ⊘RV204/SE-10 (H-3) TRIG: TP103/SE-10 (F-3)

8-2-10. Slow Tracking Center Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Set the slow adjustment control (RV802/FB-201) to the center click position.	**Step 1** Measure DC voltage (A) of CN801 pin 13/FB-201.	⊘RV803/FB-201
	Step 2 Decrease the DC voltage (B) of CN802 pin 10/ FB-201 to the half of DC voltage (A) with RV803. $B=\frac{A}{2} \pm 0.01$ (Vdc)	

8-2-11. SP Slow Adjustment

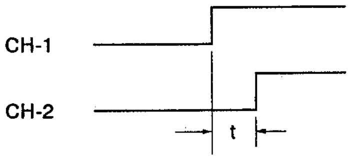
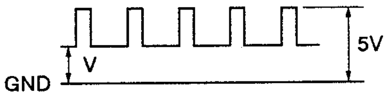
Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN : color-bar signal • Using P5-MP series tape, perform the short recording of the color-bar signal at the end of tape. • Connect TP001/SE-10 (C-2) to ground with jumper wire. • Playback (FWD) the recorded portion with SLOW (×1/5 speed) mode. • When the noise appears on the monitor screen, adjust RV104 temporarily. • When the noise appears on the monitor screen, adjust RV104 so that noise at the bottom of the screen disappears. • After adjustment, remove the jumper wire.	CH-1: TP302/SE-10 (F-3) CH-2: TP105/SE-10 (D-4)  t=minimum	⊘RV304/SE-10 (E-2) ⊘RV104/SE-10 (D-5) TRIG: TP302/SE-10 (F-3)

8-2-12. LP Slow Adjustment

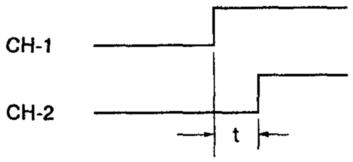
Note: This adjustment should be performed after completion of "8-2-12. SP Slow Adjustment".

Machine condition for adjustment	Specifications	Adjustments
• Connect pin 4 of CN901/SE-10 (A-5) to ground with jumper wire. (LP mode) • VIDEO IN : Color-bar signal • Perform the a short recording of the color-bar signal at the end of P5-MP series tape. • Connect TP001/SE-10 (C-2) to ground with jumper wire. • Playback (FWD) the recorded portion with SLOW (×1/5 speed). • After adjustment, remove jumper wires.	Adjust RV103 so that the noise at the bottom of the screen disappears.	⊘ RV103/SE-10 (E-5)

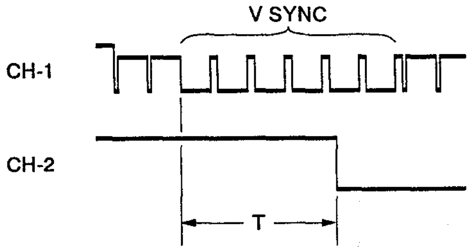
8-2-13. SP Slow fH Adjustment

Machine condition for adjustment	Specifications	Adjustments
Step 1 • Perform the short recording of the color-bar signal with a Hi8 ME tape. Play back the recorded portion with SLOW (×1/30 speed). SLOW (×1/30 speed): Short-circuit pin 5 of CN901/SE-10 (A-5) to ground for one second with 6.2kΩ resistor. (1-247-850-11)	CH-1: TP103/SE-10 (F-3) CH-2: TP102/SE-10 (D-5)  t=580 ± 10 μsec	⊘ RV301/SE-10 (F-1)
Step 2 • Perform the short recording of the color-bar signal with a Hi8 ME tape. Play back the recorded portion with SLOW (×1/5 speed). SLOW (×1/5 speed): Press SLOW button or short-circuit pin 5 of CN901/SE-10 (A-5) to ground for one second with 3.6kΩ resistor. (1-247-844-11)	TP301/SE-10 (E-2)  V=3.9 ± 0.1 Vdc	⊘ RV303/SE-10 (E-1)

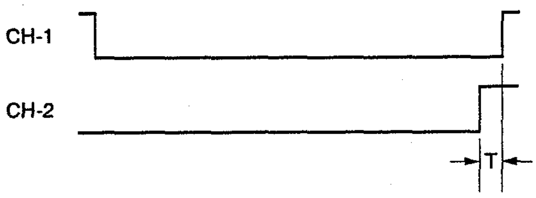
8-2-14. LP Slow f_H Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Connect pin 4 of CN901/SE-10 (A-5) to GND with jumper wire. (LP mode) • Perform the short recording of the color-bar signal with a Hi8 ME tape. Play back the recorded portion with SLOW (×1/5 speed).	CH-1: TP103/SE-10 (F-3) CH-2: TP102/SE-10 (D-5)  t=580 ± 10 μsec	⊘ RV302/SE-10 (F-2)

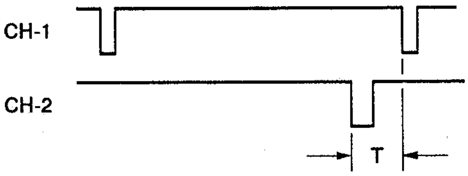
8-2-15. REF VD Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal	CH-1: TP301/IF-38 CH-2: TP701/IF-38  T=136.7 ± 5 μsec	⊘ RV701/IF-38

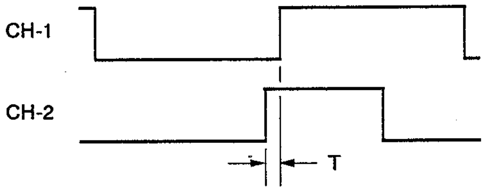
8-2-16. O/E Window Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal	CH-1: TP804/MA-163 CH-2: TP805/MA-163  T=3.0 ± 0.2 msec	⊘ RV801/MA-163

8-2-17. DELAYED VD Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal	CH-1: TP802/MA-163 CH-2: TP803/MA-163  T=2.0 ± 0.2 msec	⊘ RV803/MA-163

8-2-18. EXT O/E Window Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal	CH-1: TP806/MA-163 CH-2: TP807/MA-163  T=1.0 ± 0.2 msec	⊘ RV802/MA-163

8-2-19. Picture Splitting Adjustment

Machine condition for adjustment	Specifications	Adjustments
	Set RV802 and RV803 on the MD-23 board to the mechanical center position,	⊘ RV802/MD-23 (A-2) ⊘ RV803/MD-23 (A-2)

8-3. VIDEO SIGNAL SYSTEM ADJUSTMENT

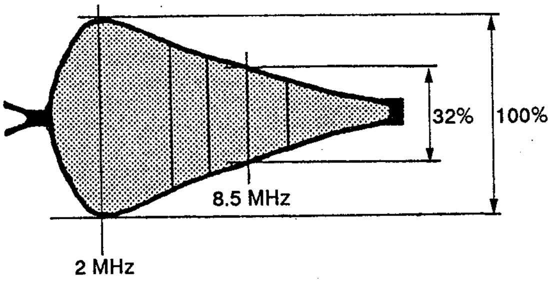
8-3-1. Equipment Required

- Oscilloscope
- Frequency counter
- Pattern generator
- Digital voltmeter
- Alignment tape

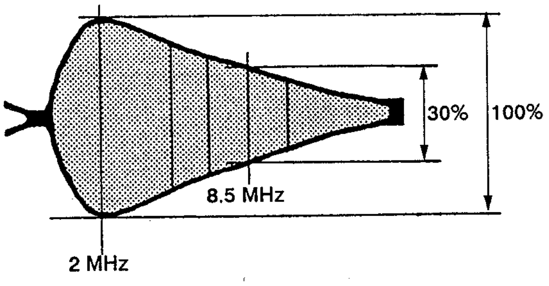
Name (Part No.)	REC mode	Tape Type	Tape Speed	Contents	
				Video Area	PCM Area
Video freq. resp. WR5-7CE (8-967-995-18)	Hi8	ME	LP	RF sweep 0 to 15 MHz Marker: 2.0 MHz 4.5 MHz 7.0 MHz 8.5 MHz 10.0 MHz	
SP operation check WR5-5CSP (8-967-995-47)	STD	MP	SP	VIDEO SIGNAL Color-bar: 4 min. Monoscope: 4 min. AUDIO SIGNAL (AFM) 400 Hz, 60% modulation	AUDIO SIGNAL (PCM) • Monoscope Section 20 Hz: 20 sec. 400 Hz: 20 sec. 14 kHz: 20 sec. • Color-Bar Section 1 kHz: 4 min.
SP operation check WR5-8CSE (8-967-995-48)	Hi8	ME	SP		AUDIO SIGNAL (PCM) 400 Hz: 20 min.
LP operation check WR5-8CLE (8-967-995-57)	Hi8	ME	LP	VIDEO SIGNAL Color-bar: 4 min. Monoscope: 4 min. AUDIO SIGNAL (AFM) 400 Hz, 60% modulation	AUDIO SIGNAL 400 Hz: 40 min.

- Extention cord
  - 5 PIN, 2 mm (J-6082-154-A)
    - HK-5 board CN911 ⟷ IF-38 board CN401
  - 6 PIN, 2 mm (J-6082-155-A)
    - HK-5 board CN914 ⟷ IF-38 board CN502
  - 7 PIN, 2 mm (J-6082-156-A)
    - HK-5 board CN912 ⟷ IF-38 board CN501
  - 9 PIN, 2 mm (J-6082-157-A)
    - MB-19 board CN923 ⟷ MA-163 board CN012
  - 12 PIN, 2 mm (J-6082-158-A)
    - SE-10 board CN902 ⟷ FB-201 board CN802
    - SE-10 board CN907 ⟷ MA-163 board CN007
  - 13 PIN, 2 mm (J-6082-159-A)
    - SE-10 board CN903 ⟷ MA-163 board CN802

8-3-2. SP PB Frequency Response Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Connect TP104/SE-10 (D-4) to ground with a jumper wire. • Play back the alignment tape WR5-7CE. • After adjustment, remove the jumper wire.	CN004-3/FR-43 (A-2)  8.5 MHz=32^{+4}_{-0}% (in reference to 2 MHz)	⊘RV004/RP-103 (SP) TRIG: CN004-2/FR-43 (A-2) TRIG. SLOPE: –
	CN004-4/FR-43 (A-2) 8.5 MHz=32^{+4}_{-0}% (in reference to 2 MHz)	⊘RV003/RP-103 (SP) TRIG: CN004-2/FR-43 (A-2) TRIG. SLOPE: +

8-3-3. LP PB Frequency Response Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the alignment tape WR5-7CE.	CN004-5/FR-43 (A-2)  8.5 MHz=30^{+4}_{-0}% (in reference to 2 MHz)	⊘RV004/RP-73 (LP) TRIG: CN004-2/FR-43 (A-2) TRIG. SLOPE: +
	CN004-6/FR-43 (A-2) 8.5 MHz=30^{+4}_{-0}% (in reference to 2 MHz)	⊘RV003/RP-73 (LP) TRIG: CN004-2/FR-43 (A-2) TRIG. SLOPE: –

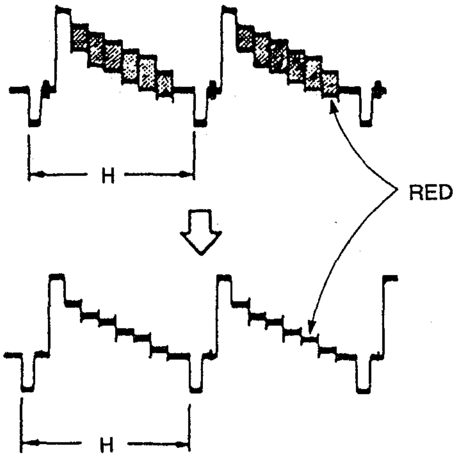
8-3-4. Flying Erase Confirmation

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN : color-bar signal • Use a Hi8 ME tape. • REC mode	TP041/FR-43 (C-1) 8.0 ± 0.5 MHz	

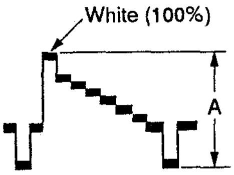
8-3-5. SubCarrier Frequency Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: no signal • PB mode	CN914-7/HK-5 (H-3) 4433618 ± 50 Hz	⊘ CV601/HK-5 (B-4)

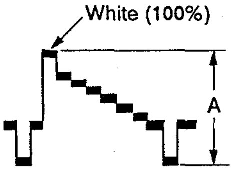
8-3-6. PB C Comb Filter Adjustment

Machine condition for adjustment	Specifications	Adjustments
• When adjusting the recorder, disconnect CN911/HK-5 (H-2). • Supply the composite color-bar signal (Y=0.5 Vp-p, burst=0.15 Vp-p) to CN911-4/HK-5 (H-2). • E-E mode • After adjustment, connect the CN911.	IC501-26/HK-5 (B-3)  Minimize residual chroma component at RED portion (30 mVp-p or less)	⊘ RV502/HK-5 (B-2) ⊘ LV501/HK-5 (D-3)

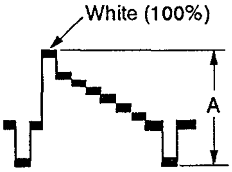
8-3-7. SYNC AGC Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: color-bar signal • E-E mode	TP402/HK-5 (E-3)  A=0.50 ± 0.02 Vp-p	⊘ RV302/HK-5 (E-1)

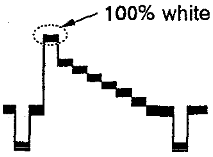
8-3-8. AGC Output Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: color-bar signal • E-E mode	TP301/HK-5 (D-3)  A=0.50 ± 0.02 Vp-p	⊘ RV405/HK-5 (C-1)

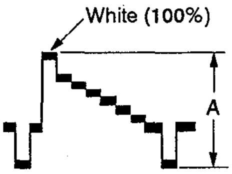
8-3-9. STD Mode PB Y Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-5CSP.	TP302/HK-5 (D-3)  A=0.50 ± 0.02 Vp-p	⊘ RV304/HK-5 (E-3)

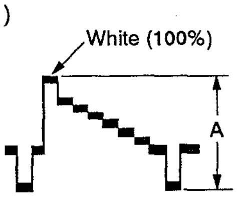
8-3-10. PB De-emphasis Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-5CSP.	TP302/HK-5 (D-3)  100% white level=makes flat	⊘ RV303/HK-5 (D-2)

8-3-11. Hi8 Mode PB Y Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-8CSE.	TP302/HK-5 (D-3)  A=0.50 ± 0.02 Vp-p	⊘ RV305/HK-5 (E-3)

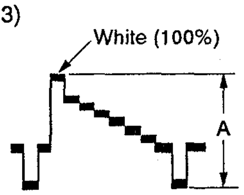
8-3-12. E-E Y Output Level Adjustment

At recorder adjustment:	• VIDEO IN: color-bar signal	Machine condition for
At recorder adjustment: • VIDEO IN: color-bar signal • E-E mode	TP303/HK-5 (E-1)  A=1.00 ± 0.05 Vp-p	⊘ RV301/HK-5 (E-1)
At player adjustment: • Play back the color-bar potion of the alignment tape WR5-8CSE.		

8-3-13. STD Mode Y FM Carrier Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: no signal • Use a P5-MP series tape. • E-E mode	TP401/HK-5 (D-3) 4.37 ± 0.02 MHz	⊘ RV402/HK-5 (D-2)

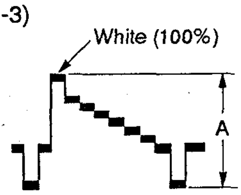
8-3-14. STD Mode Y FM Deviation Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: color-bar signal • Preform the self-recording/play back with a P5-MP series tape.	TP302/HK-5 (D-3)  A=0.50 ± 0.02 Vp-p • Repeat recording and play back several times until the level meets the specification. Adjust the RV403 during recording.	⊘ RV403/HK-5 (E-2) When turning in the clockwise direction, the level decreases.

8-3-15. Hi8 Mode Y FM Carrier Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: no signal • Use Hi8 ME tape. • E-E mode	TP401/HK-5 (D-3) 5.95 ± 0.02 MHz	⊘ RV401/HK-5 (D-2)

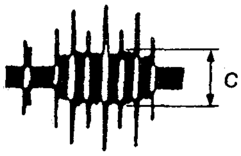
8-3-16. Hi8 Mode Y FM Deviation Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: color-bar signal • Preform the self-recording/play back with a Hi8 ME tape.	TP302/HK-5 (D-3)  A=0.50 ± 0.02 Vp-p • Repeat recording and play back several times until the level meets the specification. Adjust RV404 during recording.	⊘ RV404/HK-5 (D-2) When turning in the clockwise direction, the level decreases.

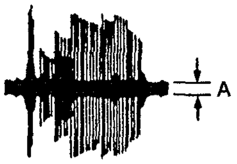
8-3-17. $375f_H$ VCO Adjustment

Machine condition for adjustment	Specifications	Adjustments
At recorder adjustment: • VIDEO IN: Color-bar signal • E-E mode	IC602-26/HK-5 (B-4) 3.0 ± 0.1Vdc	⊘ RV601/HK-5 (A-4)
At player adjustment: • Play back the alignment tape WR5-5CSP or WR5-8CSE		

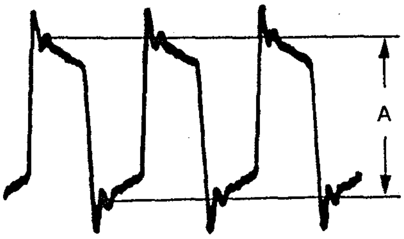
8-3-18. Chroma Emphasis f_0 Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Connect pin 47 of IC602 to Pin 7 of CN102/HK-5 (F-6) via 10 k ohm resistor. • Connect pin 47 of IC602 to ground via 10 k ohm resistor. • VIDEO IN: color-bar signal • E-E mode • After adjustment, remove the resistor.	IC601-11/HK-5 (A-5)  C (chroma component)=minimum	⊘ T602/HK-5 (B-6)

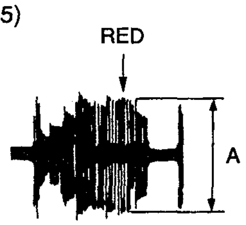
8-3-19. Carrier Balance Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal • E-E mode	IC602-40/HK-5 (B-4)  A (5.17 MHz component)=minimum	⊘ RV602/HK-5 (A-5)

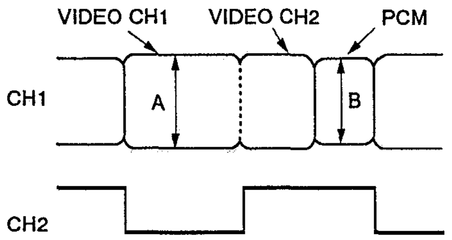
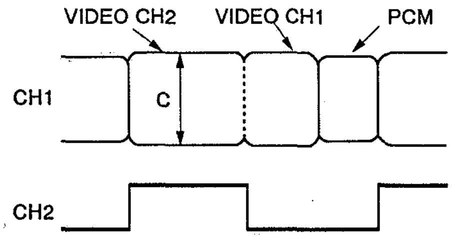
8-3-20. REC Y RF Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: no signal • Use a P5-MP tape • E-E mode	TP201/HK-5 (F-6)  A=0.50 ± 0.02 Vp-p	⊘ RV202/HK-5 (E-5)

8-3-21. REC C RF Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Perform following connections. Q211-emitter (F-5) ↔ Pin 7 of CN102/HK-5 (F-6) CN101-3 (C-6) ↔ ground Q608-emitter (D-5) ↔ ground • VIDEO IN: color-bar signal • Use a Hi8 ME tape • E-E mode • After adjustment, remove the jumper wires.	TP201/HK-5 (F-5)  A=100 ± 10m Vp-p	⊘ RV201/HK-5 (C-5)

8-3-22. SP REC Current Adjustment

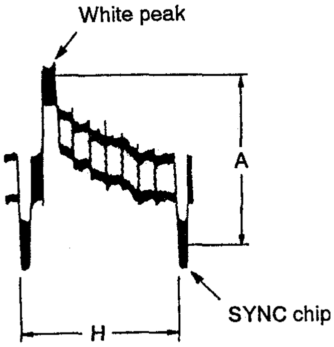
Machine condition for adjustment	Specifications	Adjustments
STEP 1 • VIDEO IN: No signal • Use Hi8 ME tape • REC mode	CH1: TP001/FR-43 (A-1) CH2: CN004-2/FR-43 (A-2)  A (VIDEO CH1)=220 ± 10 mV B (PCM)=220 ± 10 mV	VIDEO CH1 ⊘ RV002/FR-43 (C-2) PCM ⊘ RV002/RP103 TRIG: CN004-2/FR-43 (A-2)
STEP 2 • VIDEO IN: No signal • Use Hi8 ME tape • REC mode	CH1: Pin 20 of PR-103 CH2: CN004-2/FR-43 (A-2)  C(VIDEO CH2)=220 ± 10 mV	VIDEO CH2 ⊘ RV001/FR-43 (D-2) TRIG: CN004-2/FR-43 (A-2)

Note: LP recording current adjustment (RV001, RV002/RP-73) is not required.

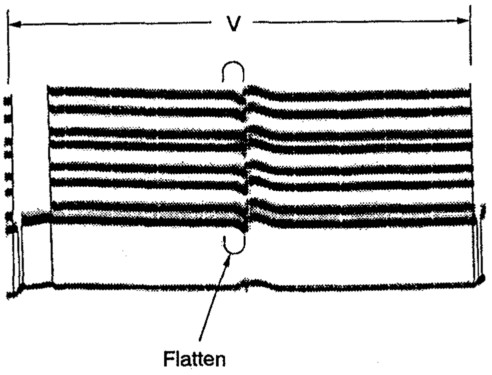
8-3-23. DOC Level Adjustmnt

Machine condition for adjustment	Specifications	Adjustments
• Play back the alignment tape WR5-8CLE.	Q182-3 (base)/HK-5 (H-3) +1.85 ± 0.01 Vdc	⊘ RV101/HK-5 (H-4)

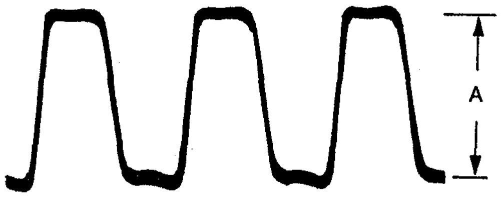
8-3-24. Comb AGC Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal • E-E mode **Note:** Be sure to connect a 22 kΩ of resistor in series between TP501 and 10:1 probe.	TP501/HK-5 (C-2)  A=0 ± 100 mVp-p	⊘ RV501/HK-5 (B-2)

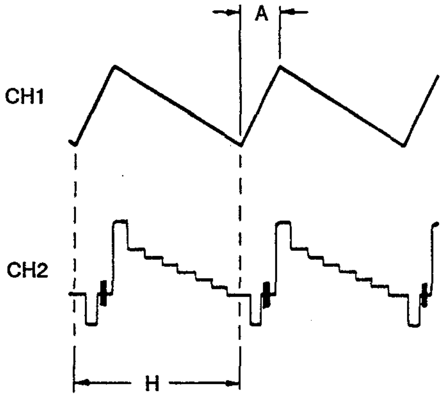
8-3-25. DOC Clamp Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bar tape with drope out (Note 1). **Note:** A tape with continuous dropout is made by scratching the magnetic section of a color bar tape which is running with the tip of a precision driver.	IC501-6/HK-5 (B-3) 	⊘ RV503/HK-5 (B-2)

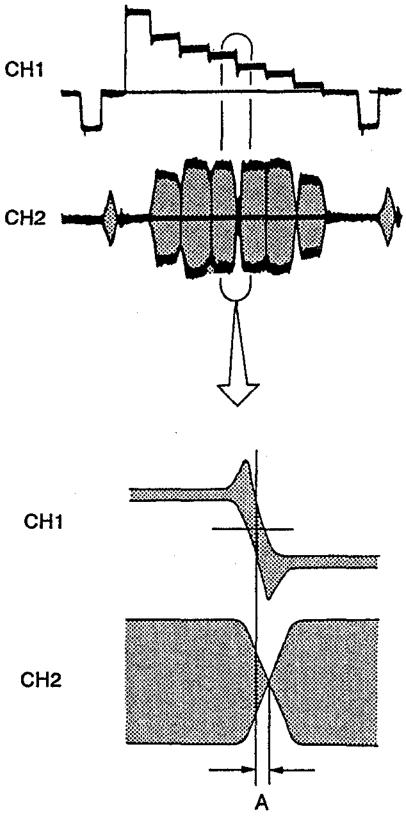
8-3-26. GCA GAIN Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the alignment tape WR5-8CSE.	IC801-22/HK-5 (A-3)  A=500 ± 25 mV	⊘ RV801/HK-5 (A-3)

8-3-27. f_H VCO Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal • E-E mode **Note**: Confirm that CH1 and CH2 waveform is stable.	CH1: IC801-13/HK-5 (A-3) CH2: TP303/HK-5 (E-1)  A=14.5 ± 0.2 μsec	⊘ RV802/HK-5 (A-3)

8-3-28. Y/C DELAY Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bar portion of the alignment tape WR5-8CSE.	CH1: TP303/HK-5 (E-1) CH2: TP801/HK-5 (A-1)  Minimize the A	⊘ RV700/HK-5 (H-5)

8-4. VIDEO INPUT/OUTPUT CIRCUIT ADJUSTMENT

8-4-1. Instruments to be Used for Video Input/output Circuit Adjustment

- Pattern generator (with S VIDEO output terminal)
- Oscilloscope
- Monitor TV
- Title keyboard
- Digital voltmeter
- Alignment tapes

Name (Part No.)	REC mode	Tape Type	Tape Speed	Contents	
				Video Area	PCM Area
SP operation check WR5-8CSE (8-967-995-48)	Hi8	ME	SP	VIDEO SIGNAL Color-bar: 4 min. Monoscope: 4 min. AUDIO SIGNAL (AFM) 400 Hz, 60% modulation	AUDIO SIGNAL (PCM) 400 Hz: 20 min.

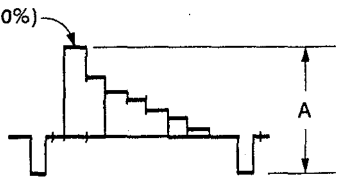
8-4-2. Switch Setting

Frame memory select ·····························OFF
Video input select switch
At video signal input ·····························VIDEO
At S video signal input··························S VIDEO

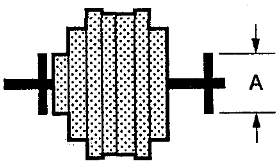
8-4-3. Y/C Separation fsc Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: No signal • STOP mode	TP101/IF-38 4433618 ± 20 Hz	⊘CV101/IF-38

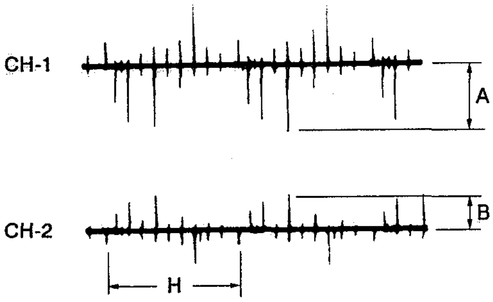
8-4-4. Y/C Separation Y Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal • STOP mode	TP201/IF-38  A=1.00 ± 0.05 Vp-p	⊘RV001/IF-38

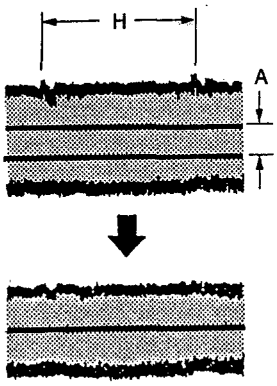
8-4-5. Y/C Separation Chroma Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal • STOP mode	TP202/IF-38  A=0.300 ± 0.01 Vp-p	⊘ RV002/IF-38

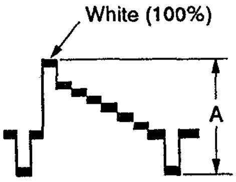
8-4-6. Noise Cancel +6 dB Amplifier Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal • STOP mode	CH-1:TP505/IF-38 CH-2: TP501/IF-38  Peak level B×2=Peak level A	⊘ RV503/IF-38

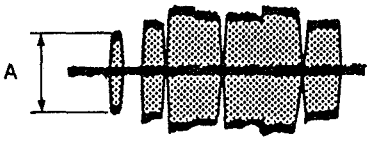
8-4-7. Limiter Cancel Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the monoscope section of the alignment tape WR5-8CSE.	CH-1: IC503-1/IF-38  A=Minimum	⊘ RV504/IF-38 TRIG: CN501-1/IF-38

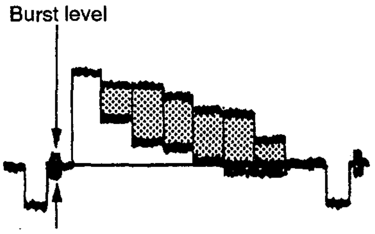
8-4-8. PB Y Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
- Play back the color-bar section of the alignment tape WR5-8CSE.	TP503/IF-38  A=1.00 ± 0.05 Vp-p	⊘ RV501/IF-38

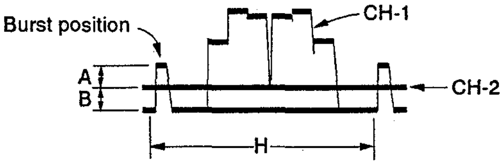
8-4-9. Chroma Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
- Play back the color-bar section of the alignment tape WR5-8CSE.	TP504/IF-38  A=0.300 ± 0.01 Vp-p	⊘ RV502/IF-38

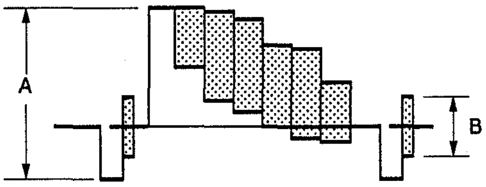
8-4-10. YX Filter Adjustment

Machine condition for adjustment	Specifications	Adjustments
- VIDEO/S VIDEO select switch is set to S VIDEO position. - Remove the CN902/IF-38, and supply the composite color-bar signal which the burst level is 30 mVp-p, to CN902 pin 5/IF-38. - STOP mode - Adjust RV806 so that the voltage of TP803 becomes minimum in 3.0 ± 0.5 Vdc. - After adjustment, connect the CN902. Perform "YX filter chroma control level adjustment".	TP801/IF-38  Turn RV802 and RV803 alternately to set the burst level minimum.	⊘ RV802/IF-38 ⊘ RV803/IF-38

8-4-11. YX Filter Chroma Control Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• S VIDEO IN: Color-bar signal	**STEP 1** CH-1: TP802/IF-38 (DC range) CH-2: TP802/IF-38 (DC range) Overlap the waveforms of CH-1 and CH-2 with the position knob of oscilloscope. **STEP 2** CH-1: TP802/IF-38 (DC range) CH-2: TP803/IF-38 (DC range)  Adjust RV806 to be A=B. Level difference: 20% below	⊘ RV806/IF-38

8-4-12. VIDEO OUT Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• S VIDEO IN: Color-bar signal • VIDEO/S VIDEO select switch is set to S VIDEO position. • STOP mode • The LINE OUT VIDEO terminal (J408/TR-54) is terminated at 75 Ω .	TP905/IF-38  A=1.00 ± 0.05 Vp-p B=0.300 ± 0.02 Vp-p	**Y level adjustment** ⊘ RV804/IF-38 **Chroma level adjustment** ⊘ RV805/IF-38

8-5. DIGITAL PICTURE CIRCUIT ADJUSTMENT

8-5-1. Instruments to be Used for Digital Picture Circuit Adjustment

- Pattern generator
- Oscilloscope
- Frequency counter

8-5-2. Setting for Switch and Operation Mode

Operation mode ······································ STOP
Frame memory select ······························ BUFFER

8-5-3. AFC Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: No signal • Connect pin 5 of IC704 and pin 3 of CN002 with 10 kΩ resistance (1-249-429-11). • Connect pins 10 and 11 of IC704 with 1 MΩ resistance (1-247-903-00). • After the adjustment, remove the resistances of 10 kΩ and 1 MΩ.	TP603 YWCK/MM-20 14.219 ± 0.05 MHz	⊘ CV701/MM-20

8-5-4. V-PLL Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: No signal	TP609 YRCK/MM-20 14.21875 ± 0.0002 MHz	⊘ CV704/MM-20

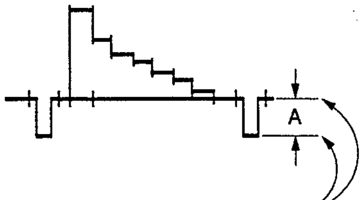
8-5-5. APC Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal	TP605 APC/MM-20 2.4 ± 0.2 Vdc	⊘ CV901/MM-20

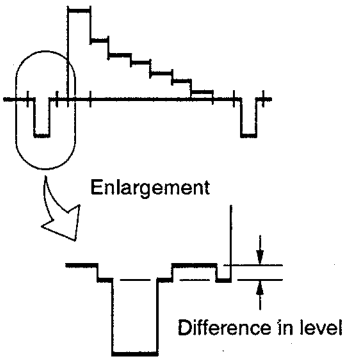
8-5-6. Chroma Encoder Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: No signal	TP607 CRCK/MM-20 17.734475 ± 0.0002 MHz	⊘ CV703/MM-20

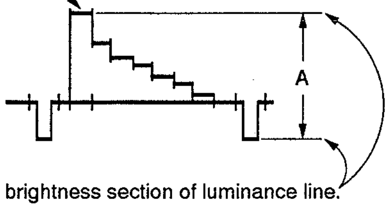
8-5-7. Y Output Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal	CN003-5/MM-20  Center of the brightness section of luminance line. A=0.300 ± 0.01V	⊘ RV603/MM-20

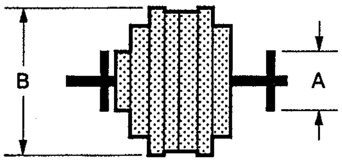
8-5-8. Y Clamp Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal • Rotate RV902 in the clockwise direction (↻), check the difference in level. • Rotate RV902 in the counterclockwise direction (↺) slowly until the difference in level disappears.	CN003-5/MM-20  	⊘ RV902/MM-20

8-5-9. Y Input Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal	CN003-5/MM-20 White (100%)  Center of the brightness section of luminance line. A=1.00 ± 0.01V	⊘ RV602/MM-20

8-5-10. C Output Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: Color-bar signal • The burst level (A) is set to the specified value with RV604. • The ratio of A and B is set to the specified value with RV601.	CN003-7/MM-20  A=0.300 ± 0.01V A:B=1:(2.2 ± 0.1)	⊘ RV601/MM-20 ⊘ RV604/MM-20

8-6. AUDIO SIGNAL SYSTEM ADJUSTMENT

8-6-1. Equipment Required

- Oscilloscope
- Frequency counter
- Audio signal generator
- Audio level meter
- Pattern generator (for video input)
- Alignment tape
- Extention cord
  20 PIN, 2 mm (J-6082-153-A)
    PA-27 board CN001 ⟷ PD-19 board CN853
  9 PIN, 2 mm (J-6082-157-A)
    MB-19 board CN923 ⟷ MA-163 board CN012

Name (Part No.)	REC mode	Tape Type	Tape Speed	Contents	
				Video Area	PCM Area
SP operation check WR5-8CSE (8-967-995-48)	Hi8	ME	SP	VIDEO SIGNAL Color-bar: 4 min. Monoscope: 4 min. AUDIO SIGNAL (AFM) 400 Hz, 60% modulation	AUDIO SIGNAL (PCM) 400 Hz: 20 min.
LP operation check WR5-8CLE (8-967-995-57)	Hi8	ME	LP	VIDEO SIGNAL Color-bar: 4 min. Monoscope: 4 min. AUDIO SIGNAL (AFM) 400 Hz, 60% modulation	AUDIO SIGNAL (PCM) 400 Hz: 20 min.

8-6-2. PCM Master Clock Adjustment

Note: Before adjustment, remove the PA-27 board.

Machine condition for adjustment	Specifications	Adjustments
• Connect pin 14 of IC853/PD-19 (A-1) and pin 11 of CN852/PD-19 (B-3) with jumper wire. • E-E mode • After the adjustment, remove jumper wire.	IC853-8/PD-19 (A-1) 11.45 ± 0.01 MHz	⊘ RV851/PD-19 (A-2)

8-6-3. PCM Playback VCO Free-Frequency Adjustment

Note: Before adjustment, remove the PA-27 board.

Machine condition for adjustment	Specifications	Adjustments
• Connect pin 9 of CN851/PD-19 (B-1) and pin 11 of CN852/PD-19 (C-3) with jumper wire. • Connect pins 7 and 8 of CN852/PD-19 (C-3) with jumper wire. • E-E mode • After the adjustment, remove jumper wires.	IC854-8/PD-19 (A-2) 11.58 ± 0.05 MHz	⊘ RV854/PD-19 (A-2)

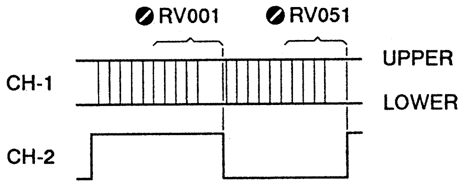
8-6-4. D/A Converter Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the Audio 400 Hz portion of the alignment tape WR5-8CSE.	CN001-16/PA-27 (A-2) –10.0 ± 0.2 dBs	⊘ RV032/PA-27 (A-1)

8-6-5. NR Decode Level Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Play back the Audio 400 Hz portion of the alignment tape WR5-8CSE.	CN001-20/PA-27 (A-3) –14.0 ± 0.5 dBs • If adjustment value doesn't meet the specification, change the value of resistors as follows and perform adjustment again. R062 12k→13k R012 12k→13k **Note:** Connect the level meter to pin 20 of CN001 through 100Ω resistanse.	⊘ RV031/PA-27 (C-1)

8-6-6. A/D Converter Offset Adjustment

Machine condition for adjustment	Specifications	Adjustments
• Connect pin 8 of CN001/PA-27 (A-2) to pin 17 of CN001/PA-27 (A-2) with jumper wire. • Connect pins 15 and 18 of CN001 with jumper wire. • Connect pins 4 and 5 of CN001 with jumper wire. • REC mode (no signal input) • After adjustment, remove jumper wires.	CH-1: CN001-11/PA-27 (A-2) CH-2: CN001-9/PA-27 (A-2)  ⊘ RV001 ⊘ RV051 UPPER LOWER CH-1 CH-2 Adjust upper and lower brightnesses for the same.	L-CH ⊘ RV001/PA-27 (B-2) R-CH ⊘ RV051/PA-27 (B-1)

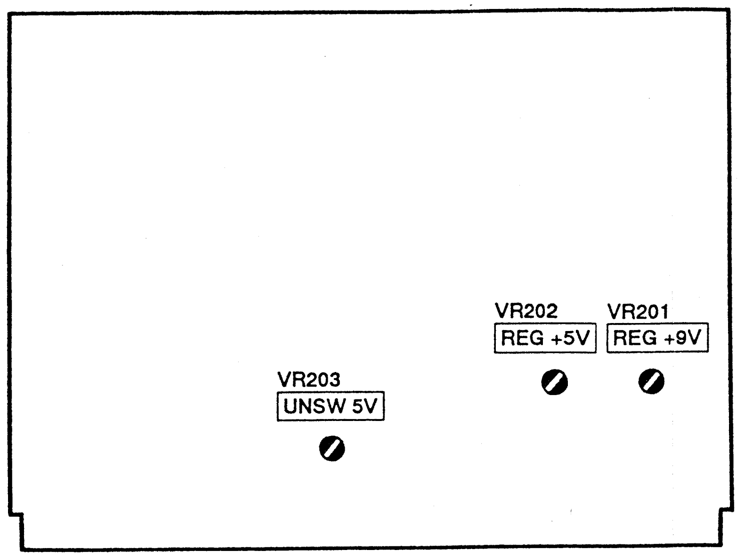
8-6-7. PCM REC Level Adjustment

Note: 1) This adjustment should be performed after completion of "NR Decoded Level Adjustment".
2) Connect the level meter to pin 20 of CN001 through 100Ω resistance.

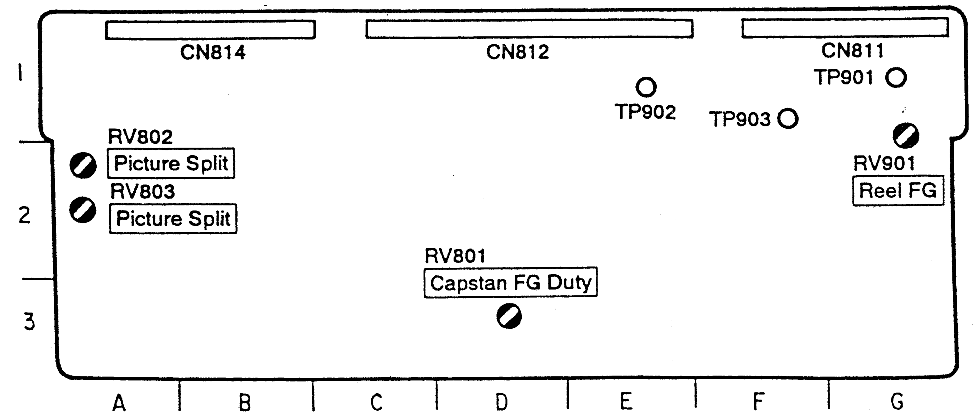
Machine condition for adjustment	Specifications	Adjustments
• AUDIO LINE IN: 400 Hz/–7.5 dB • Adjust the REC level so that the signal levels of CN001-20/PA-27 (A-3) and CN001-1/PA-27 (A-1) become –18 dBs in the E-E mode. • Preform the self-recording/play back with a Hi8 ME tape.	L-CH: CN001-20/PA-27 (A-3) –14.0 ± 0.1 dBs	L-CH ⊘ RV002/PA-27 (B-3)
	R-CH: CN001-1/PA-27 (A-1) –14.0 ± 0.1 dBs	R-CH ⊘ RV052/PA-27 (B-1)

8-7. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

Power Supply Block Location
(Component Side)

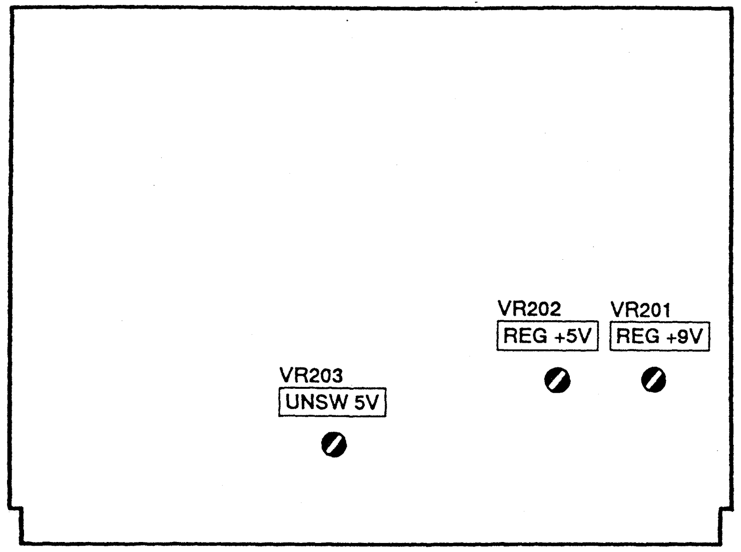

VR202
REG +5V
VR201
REG +9V
VR203
UNSW 5V

MD-23 Board Location
(Component Side)

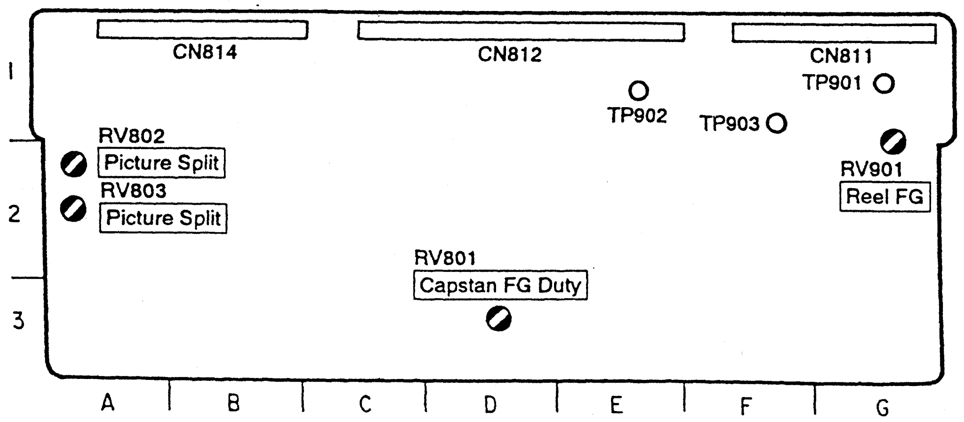

CN814
CN812
CN811
TP901
TP902
TP903
RV802
Picture Split
RV803
Picture Split
RV901
Reel FG
RV801
Capstan FG Duty
1
2
3
A
B
C
D
E
F
G

8-7. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

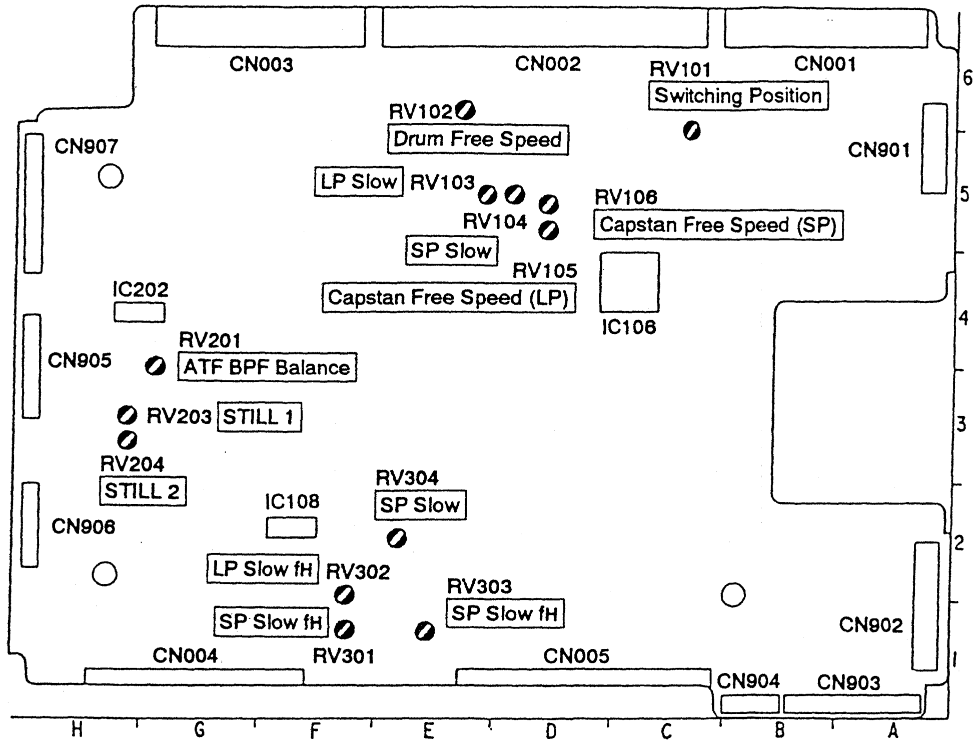
Power Supply Block Location (Component Side)


VR202
REG +5V
VR201
REG +9V
VR203
UNSW 5V

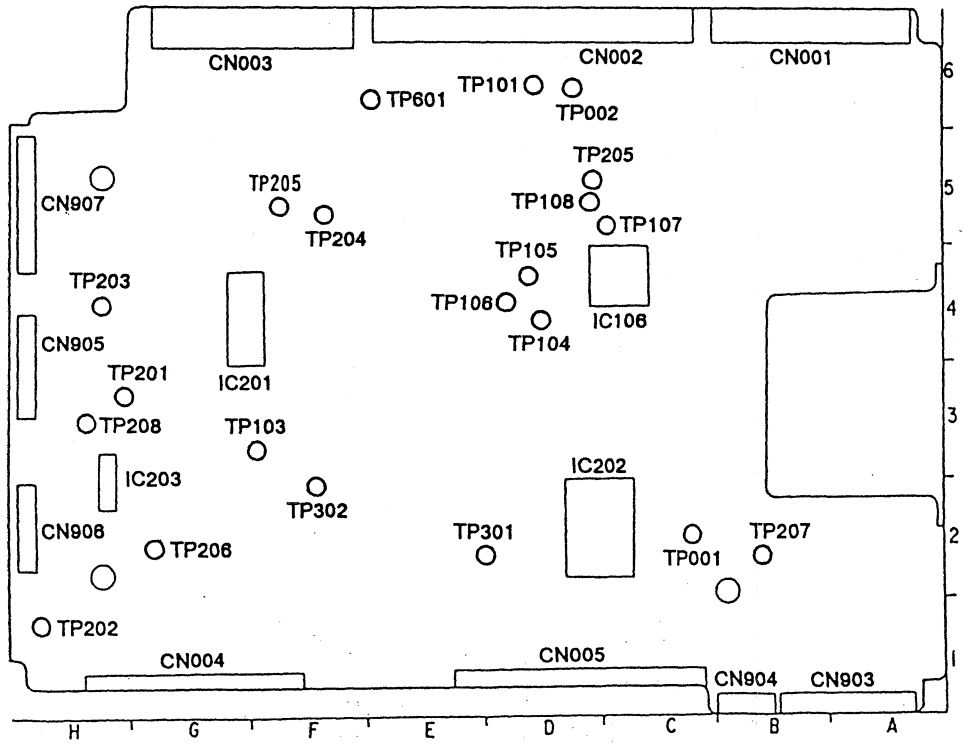
MD-23 Board Location (Component Side)


CN814
CN812
CN811
TP901
TP902
TP903
RV802
Picture Split
RV803
Picture Split
RV901
Reel FG
RV801
Capstan FG Duty
1
2
3
A
B
C
D
E
F
G

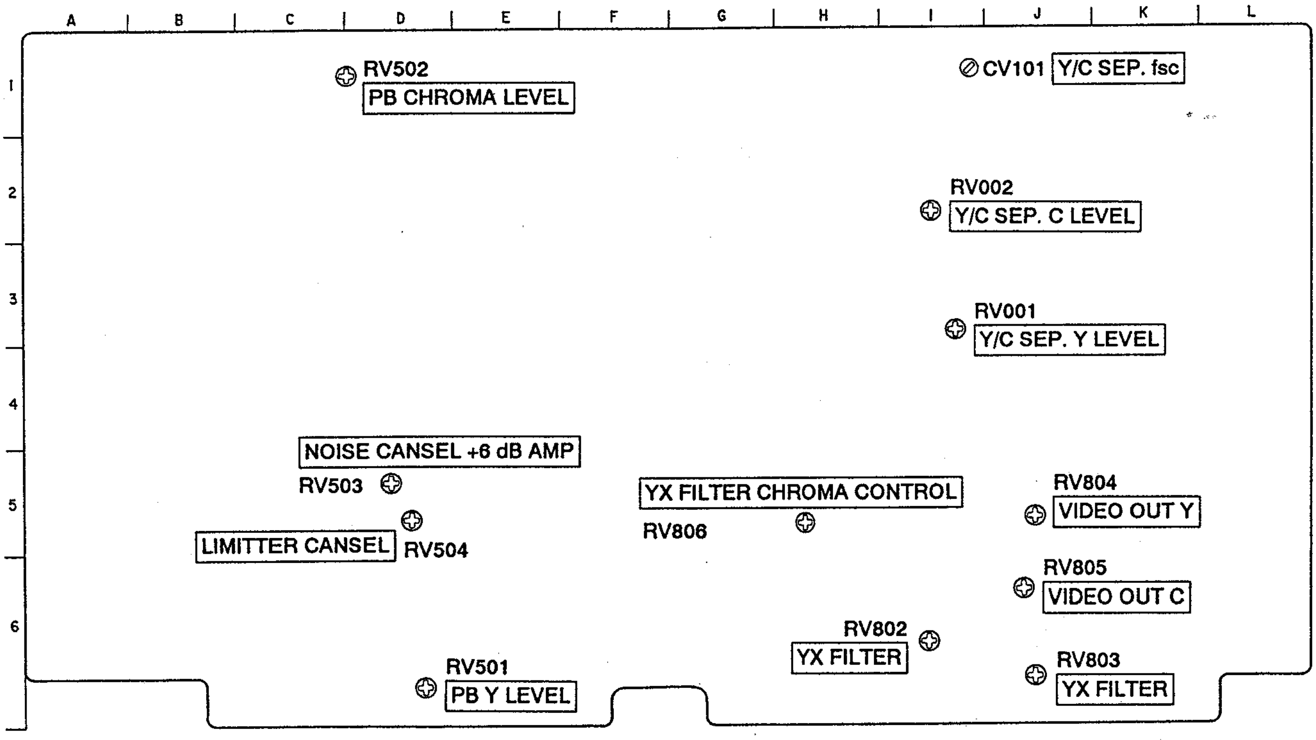
RV's on the SE-10 Board Location (Component Side)


CN003
CN002
RV101
CN001
Switching Position
RV102
Drum Free Speed
CN907
CN901
LP Slow
RV103
RV104
RV106
Capstan Free Speed (SP)
SP Slow
RV105
IC202
Capstan Free Speed (LP)
IC106
RV201
CN905
ATF BPF Balance
RV203
STILL 1
RV204
STILL 2
RV304
IC108
SP Slow
CN906
LP Slow fH
RV302
RV303
SP Slow fH
SP Slow fH
CN902
CN004
RV301
CN005
CN904
CN903
H
G
F
E
D
C
B
A
6
5
4
3
2
1

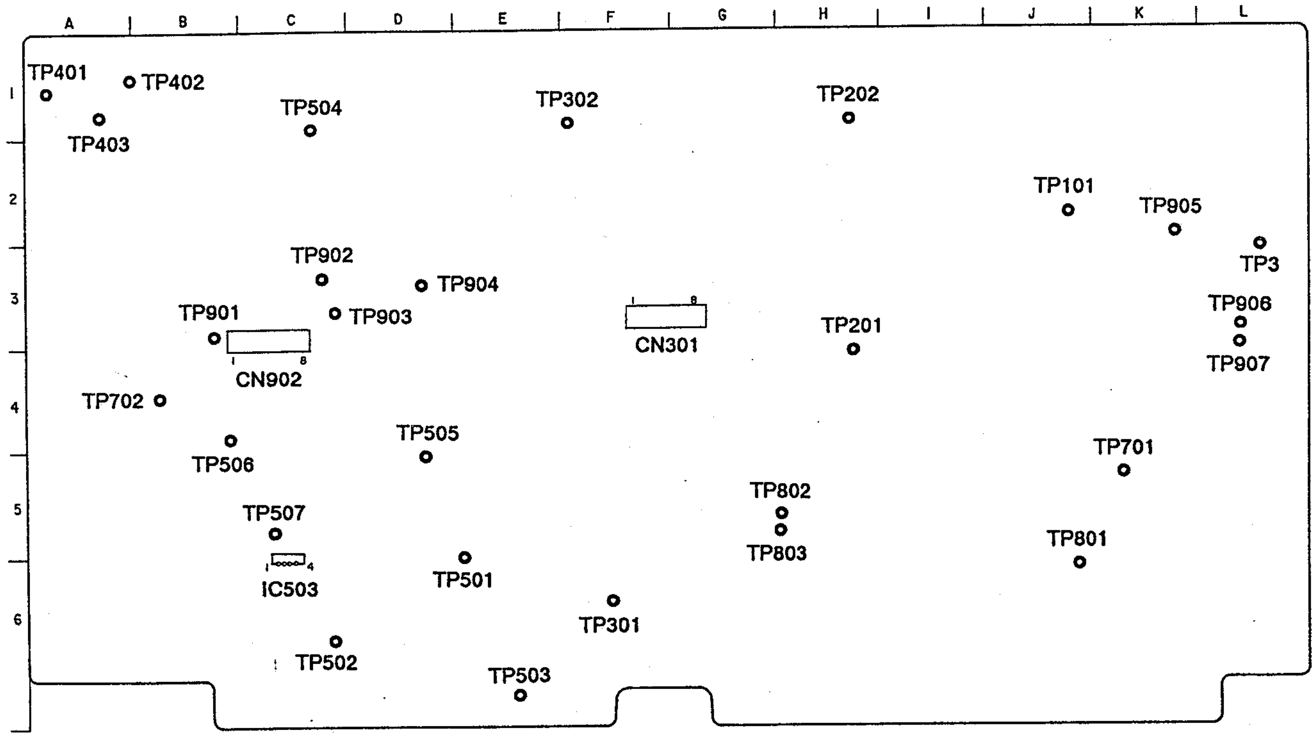
TP's on the SE-10 Board Location (Component Side)


CN003
CN002
CN001
TP601
TP101
TP002
TP205
TP205
CN907
TP108
TP107
TP204
TP105
TP203
TP106
IC106
TP104
CN905
IC201
TP201
TP208
TP103
IC203
IC202
TP302
CN906
TP301
TP207
TP206
TP001
TP202
CN004
CN005
CN904
CN903
H
G
F
E
D
C
B
A
6
5
4
3
2
1

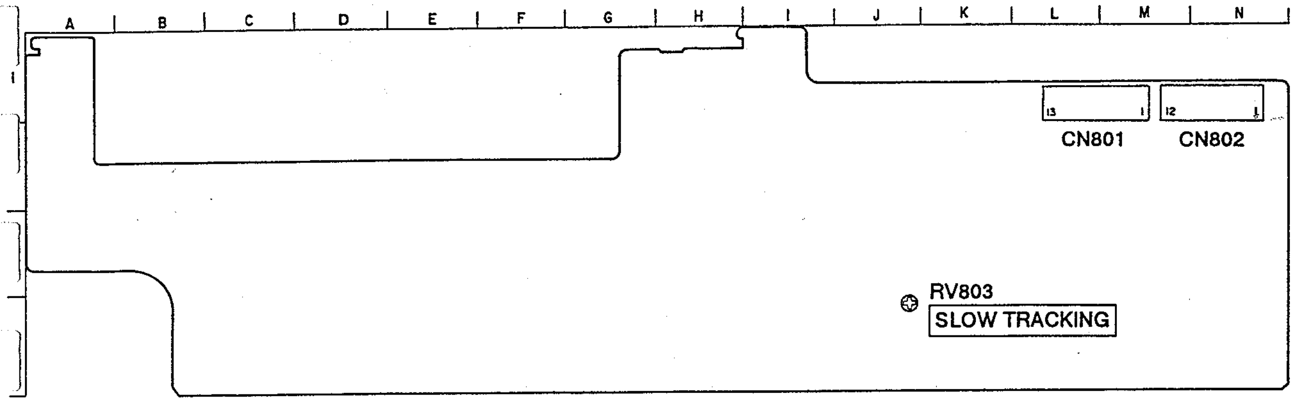
RV's on the IF-38 Board Location (Component Side)


A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
RV502
PB CHROMA LEVEL
CV101
Y/C SEP. fsc
RV002
Y/C SEP. C LEVEL
RV001
Y/C SEP. Y LEVEL
NOISE CANSEL +6 dB AMP
RV503
YX FILTER CHROMA CONTROL
RV804
VIDEO OUT Y
LIMITTER CANSEL
RV504
RV806
RV805
VIDEO OUT C
RV802
YX FILTER
RV501
PB Y LEVEL
RV803
YX FILTER

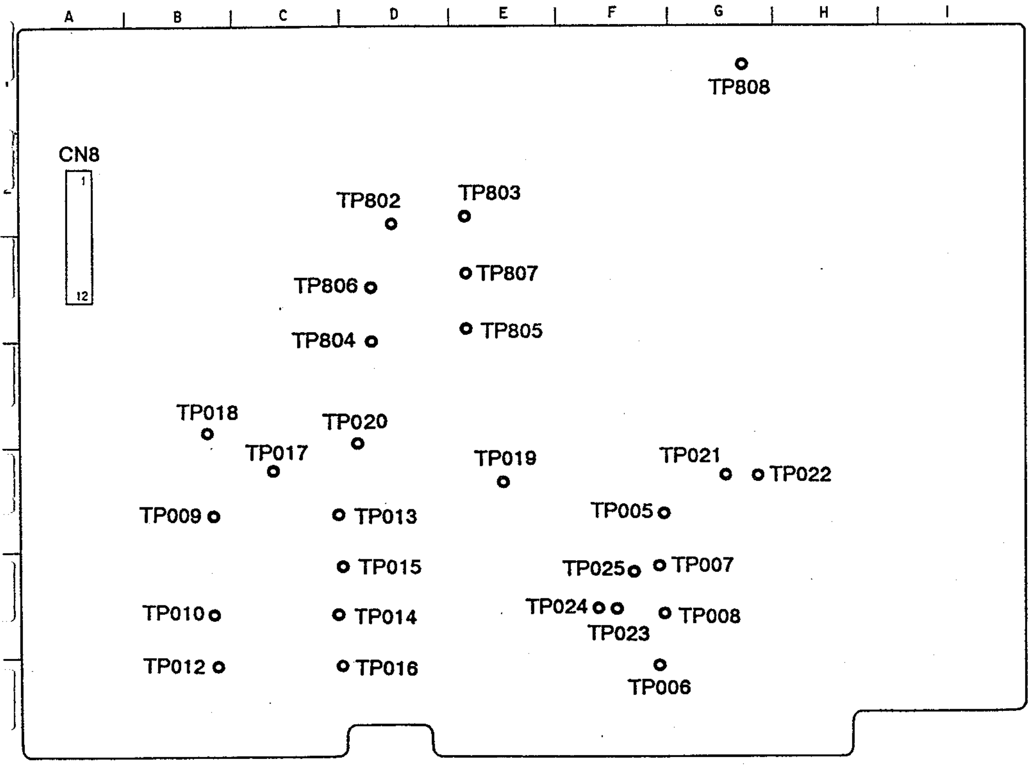
TP's on the IF-38 Board Location (Component Side)


A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
TP401
TP402
TP403
TP504
TP302
TP202
TP101
TP905
TP3
TP902
TP904
TP903
TP901
CN902
CN301
TP201
TP906
TP907
TP702
TP506
TP505
TP701
TP802
TP803
TP507
IC503
TP501
TP801
TP301
TP502
TP503

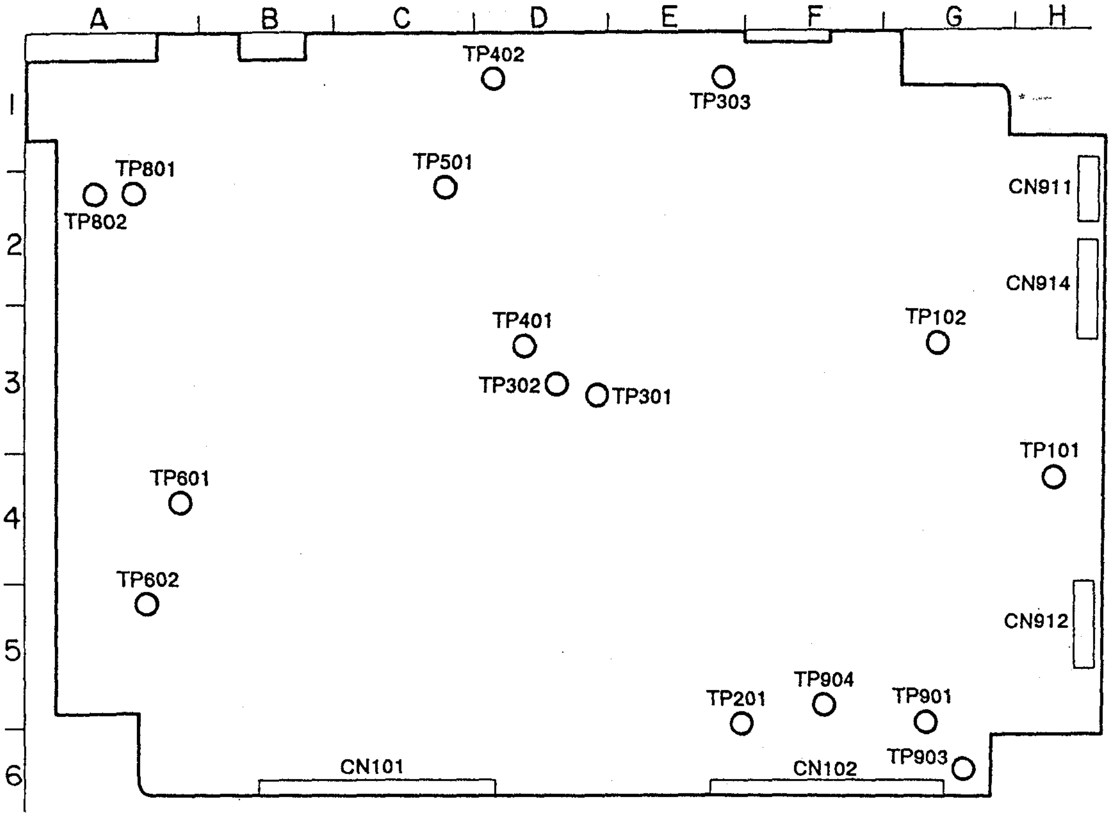
V's on the FB-201 Board Location
(Component Side)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
13
1
12
1
CN801
CN802
RV803
SLOW TRACKING

P's on the MA-163 Board Location
omponent Side)

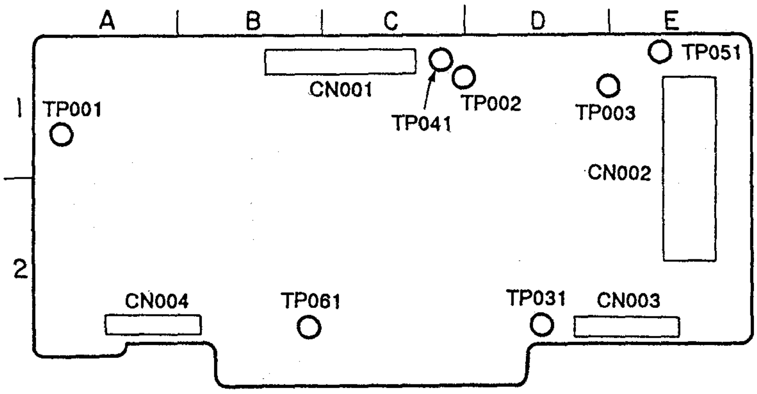

A
B
C
D
E
F
G
H
I
TP808
CN8
1
12
TP802
TP803
TP806
TP807
TP804
TP805
TP018
TP020
TP017
TP019
TP021
TP022
TP009
TP013
TP005
TP015
TP025
TP007
TP010
TP014
TP024
TP023
TP008
TP012
TP016
TP006

TP's on the HK-5 Board Location (Component Side)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
TP402
TP303
TP801
TP802
TP501
CN911
CN914
TP401
TP102
TP302
TP301
TP101
TP601
TP602
CN912
TP904
TP201
TP901
TP903
CN101
CN102

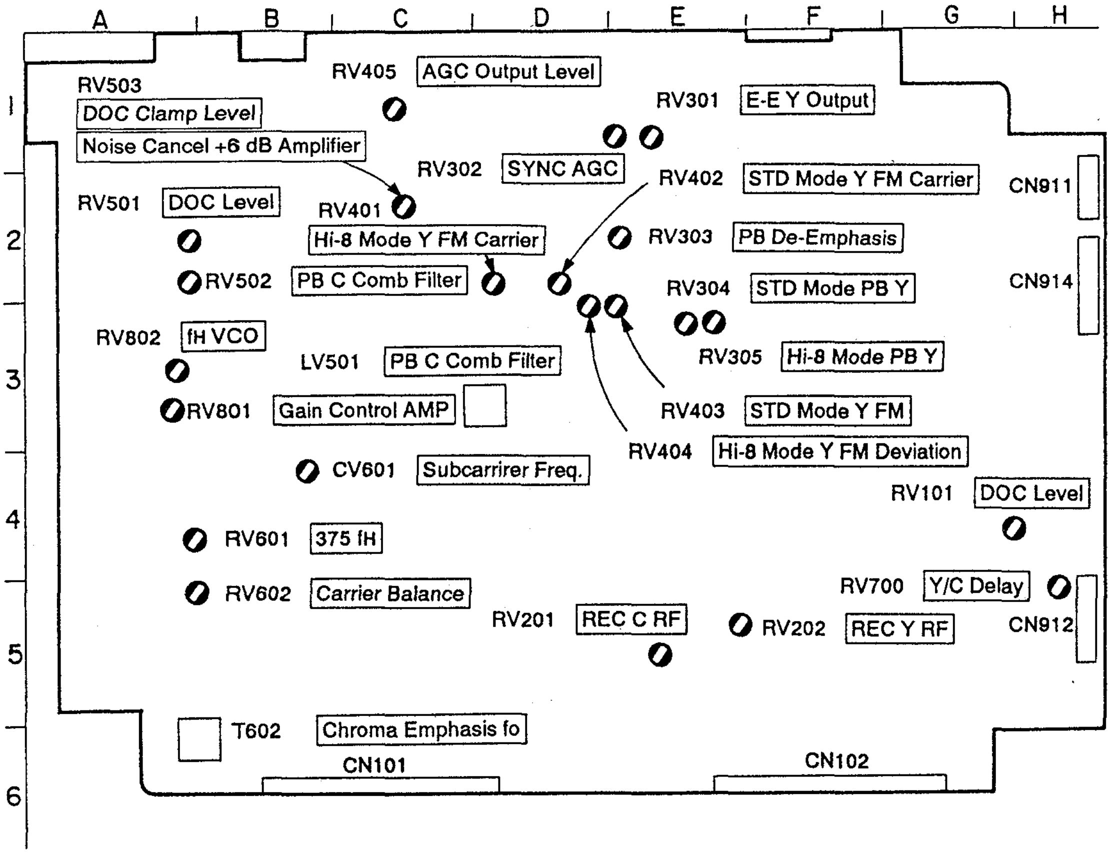
Place the unit on its right side down. Remove the Bottom Plate and Core Shild Plate. Open the HK-5 Board.

TP's on the FR-43 Board Location (Component Side)


A
B
C
D
E
TP051
1
TP001
CN001
TP041
TP002
TP003
CN002
2
CN004
TP061
TP031
CN003

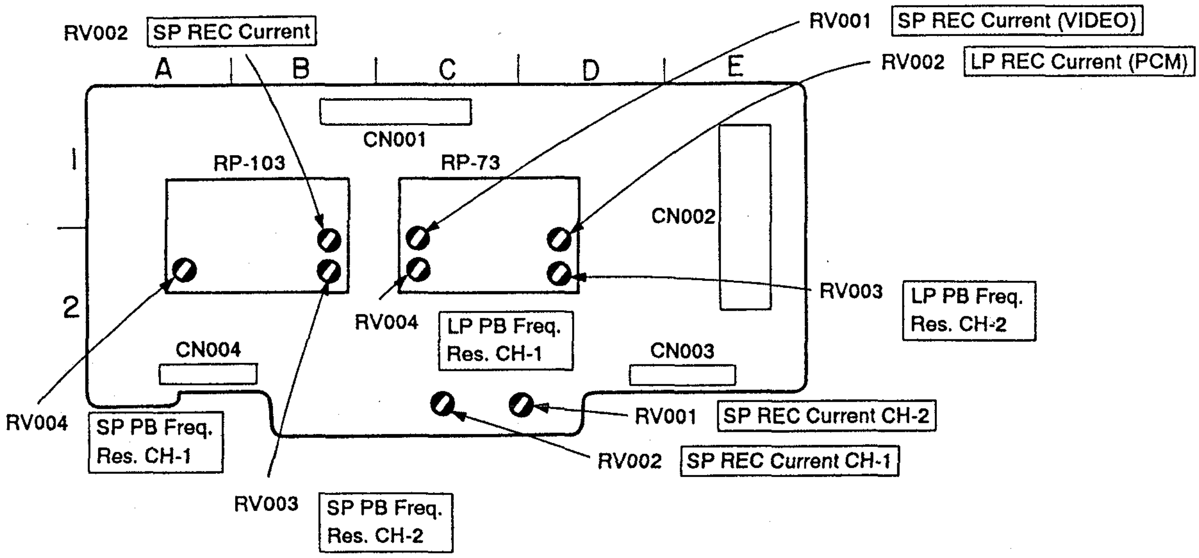
Remove the Top Plate and Open the MB-19 Board.

RV's on the HK-5 Board Location (Component Side)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
RV503
DOC Clamp Level
Noise Cancel +6 dB Amplifier
RV405
AGC Output Level
RV301
E-E Y Output
RV302
SYNC AGC
RV402
STD Mode Y FM Carrier
CN911
RV501
DOC Level
RV401
Hi-8 Mode Y FM Carrier
RV303
PB De-Emphasis
RV502
PB C Comb Filter
RV304
STD Mode PB Y
CN914
RV802
fH VCO
LV501
PB C Comb Filter
RV305
Hi-8 Mode PB Y
RV801
Gain Control AMP
RV403
STD Mode Y FM
RV404
Hi-8 Mode Y FM Deviation
CV601
Subcarrirer Freq.
RV101
DOC Level
RV601
375 fH
RV700
Y/C Delay
RV602
Carrier Balance
RV201
REC C RF
RV202
REC Y RF
CN912
T602
Chroma Emphasis fo
CN101
CN102

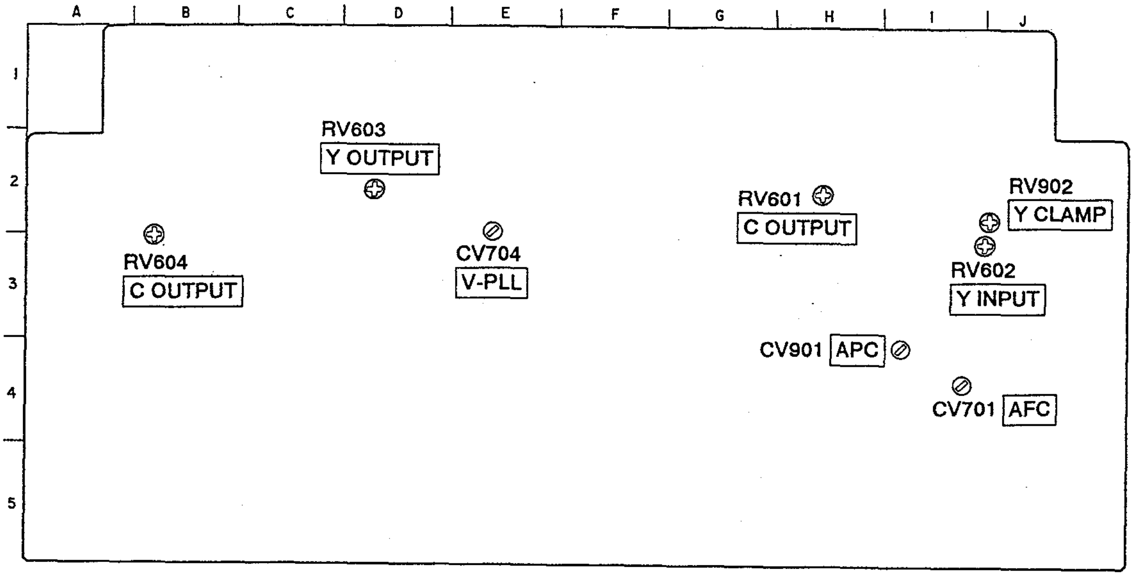
Place the unit on its right side down. Remove the Bottom Plate and Core Shild Plate. Open the HK-5 Board.

RV's on the FR-43, RP-103, RP-73 Board Location (Component Side)

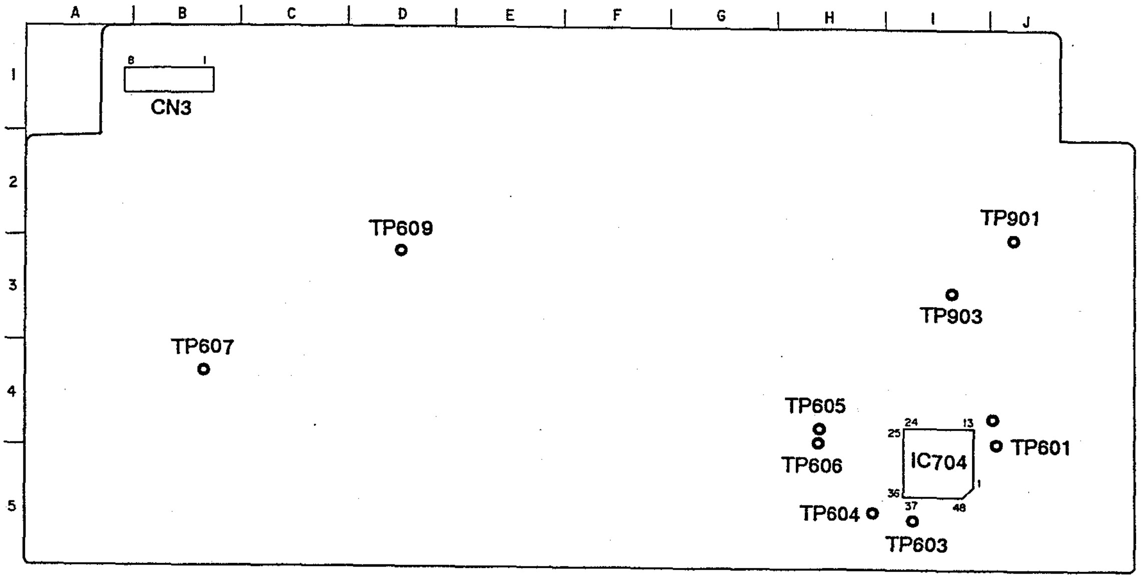

RV002
SP REC Current
RV001
SP REC Current (VIDEO)
RV002
LP REC Current (PCM)
A
B
C
D
E
1
2
CN001
RP-103
RP-73
CN002
RV003
LP PB Freq. Res. CH-2
RV004
LP PB Freq. Res. CH-1
CN004
CN003
RV004
SP PB Freq. Res. CH-1
RV001
SP REC Current CH-2
RV002
SP REC Current CH-1
RV003
SP PB Freq. Res. CH-2

Remove the Top Plate and Open the MB-19 Board.

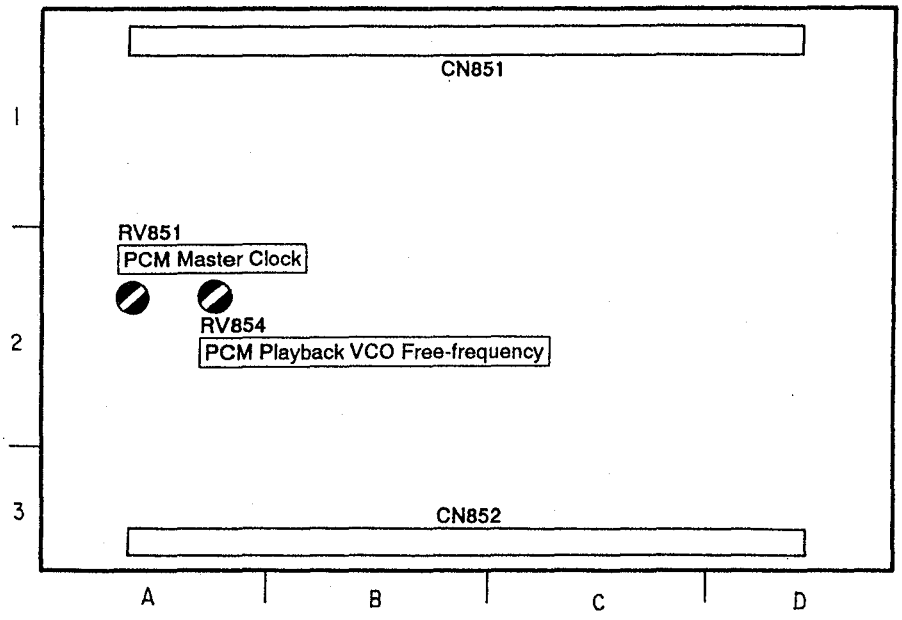
RV's on the MM-20 Board Location (Component Side)


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
RV603
Y OUTPUT
RV601
C OUTPUT
RV902
Y CLAMP
RV604
C OUTPUT
CV704
V-PLL
RV602
Y INPUT
CV901
APC
CV701
AFC

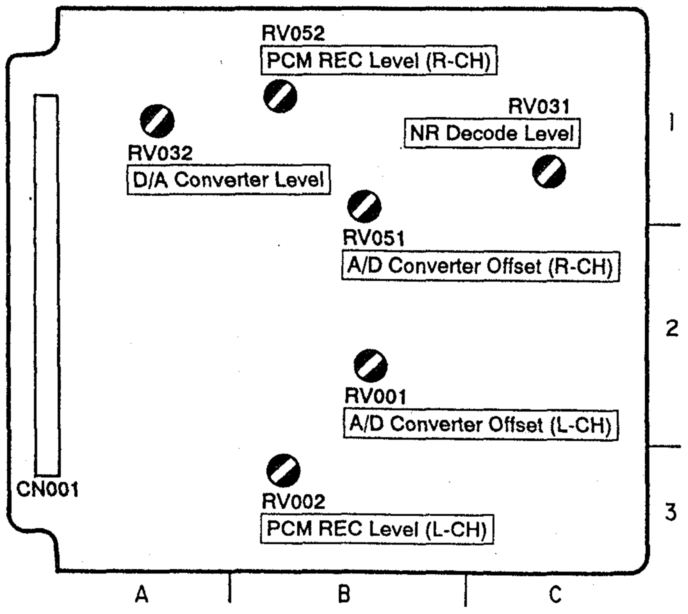
TP's on the MM-20 Board Location (Component Side)


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
8
1
CN3
TP609
TP901
TP903
TP607
TP605
TP606
24
13
25
IC704
1
36
37
48
TP601
TP604
TP603

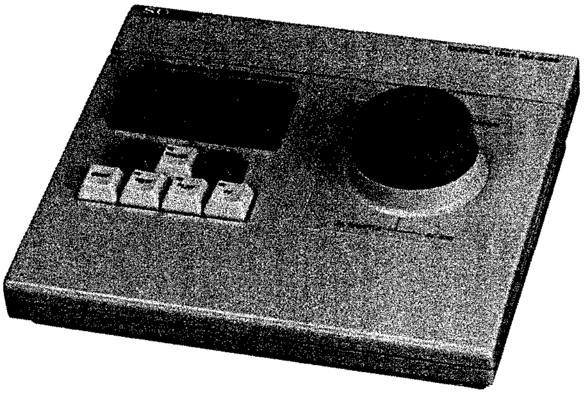
RV's on the PD-19 Board Location (Component Side)


CN851
1
RV851
PCM Master Clock
RV854
PCM Playback VCO Free-frequency
2
3
CN852
A
B
C
D

RV's on the PA-27 Board Location (Component Side)


RV052
PCM REC Level (R-CH)
RV031
NR Decode Level
1
RV032
D/A Converter Level
RV051
A/D Converter Offset (R-CH)
2
RV001
A/D Converter Offset (L-CH)
CN001
RV002
PCM REC Level (L-CH)
3
A
B
C

RM-9650



SPECIFICATIONS

Remote controller RM-9650

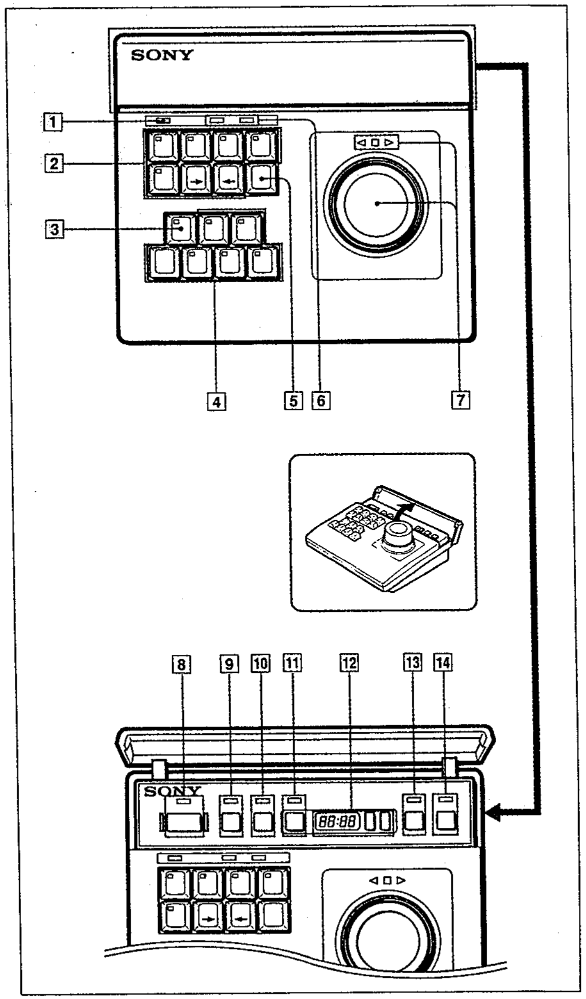
Power requirements	5 V DC, supplied from the EVO-9650P
Power consumption	0.35 W
Dimensions	210 × 87 × 195 mm (w/h/d) (8³/8 × 3¹/2 × 7³/4 inches) incl. projecting parts and controls
Weight	Approx. 750 g (1 lb 10 oz)

Design and specifications are subject to change without notice.

REMOTE CONTROLLER

SONY®

Remote Controller



1 EXT CONTROL (external control) indicator

This indicator lights when the REMOTE/ LOCAL selector on the VTR is set to REMOTE. It indicates that the remote controller is not operating.

2 Digital picture buttons and indicators (p.3-9)

Use these buttons to display the picture with special effects after passing through the digital frame memory.
To watch the digital picture from the playback signal, set the FRAME MEMORY SELECT button to DNR. To watch the digital picture from the input signal, set it to BUFFER.

FREEZE: Press to freeze one frame of the picture.

MULTI: Press to display a multi-monitor screen divided into 9 section.

ZOOM ×2: Press to zoom up a portion of the picture on the screen.

DIGITAL SLOW: Press to display the noiseless forward slow-motion picture.

FRAME/FIELD: Select the frame or field freeze picture. The indicator lights to show the FRAME mode.

←, →: Select the picture in the freeze, multi-monitor screen or zoom mode.

3 EE (Electric-to-Electric) button and indicator (p.5-5)

Press this button to display on the monitor screen input video and audio signals which have passed through the amplifier of the VTR (EE mode). The indicator lights up.

Note

The VTR will not enter the EE mode during tape formatting, even if the EE button's indicator is lit.

4 Tape transport buttons and indicator

PAUSE	Recording/playback pause button
REC	Recording button To start recording, while pressing this button press the PLAY button.
STOP	Stop button
REW	Rewind button
PLAY	Playback button
FF	Fast-forward button

The high-speed picture cannot be obtained using the REW or FF button on the remote controller.

5 FRAME MEMORY SELECT button (p.4-10)

Select the operation mode of the internal digital frame memory. Each time you press this button, DNR (Digital Noise Reducer), BUFFER or off mode is selected cyclically. The selected mode is indicated by the FRAME MEMORY indicators.

DNR	Lights to show that the playback signal passes through the frame memory.
BUFFER	Lights to show that the VTR input signal passes through the frame memory.
OFF	When no indicators light, the frame memory is not operating.

6 Frame memory select indicators

Indicates the setting of the FRAME MEMORY SELECT button.

7 JOG/SHUTTLE dial and indicators (p.3-6)

This dial has two positions: depressed (JOG) and released (SHUTTLE).
When using as a JOG dial, depress the dial and turn freely. The tape runs at the speed you are turning the dial. Release the dial to obtain a still picture.
When using as a SHUTTLE dial, press to release the dial, if depressed. Turn the dial, and the tape runs depending on the position to which the dial is turned. When you return the dial to the center position, a still picture is obtained.
The ▷ indicator indicates the forward direction, ◁ the reverse direction and ▯ the still picture.

Inside the front panel

The buttons inside the front panel are used for formatting tapes and editing.

8 EDIT/END button and indicator

Press this button to start and stop the editing whose mode is selected with buttons 9 to 14.
The indicator flashes during pre-rolling and lights during editing.

9 ASMBL (assemble) editing button and indicator (p.5-5)

Press this button to select the assemble editing mode. The indicator lights up.

10 FORMAT button and indicator (p.5-7)

Press this button to format a tape for insert editing. The indicator lights up.
The time code and PCM recording are made on the background colour selected on the menu screen.
Perform the formatting before the video/AFM insert editing.

11 VIDEO/AFM insert button and indicator (p.5-9)

Press this button to select the video/AFM insert mode. The indicator lights up.

12 SECOND/FRAME counter and UP and DOWN buttons (p.5-9)

Specify the duration of the video/AFM insert editing by the second and frame using the UP and DOWN buttons.

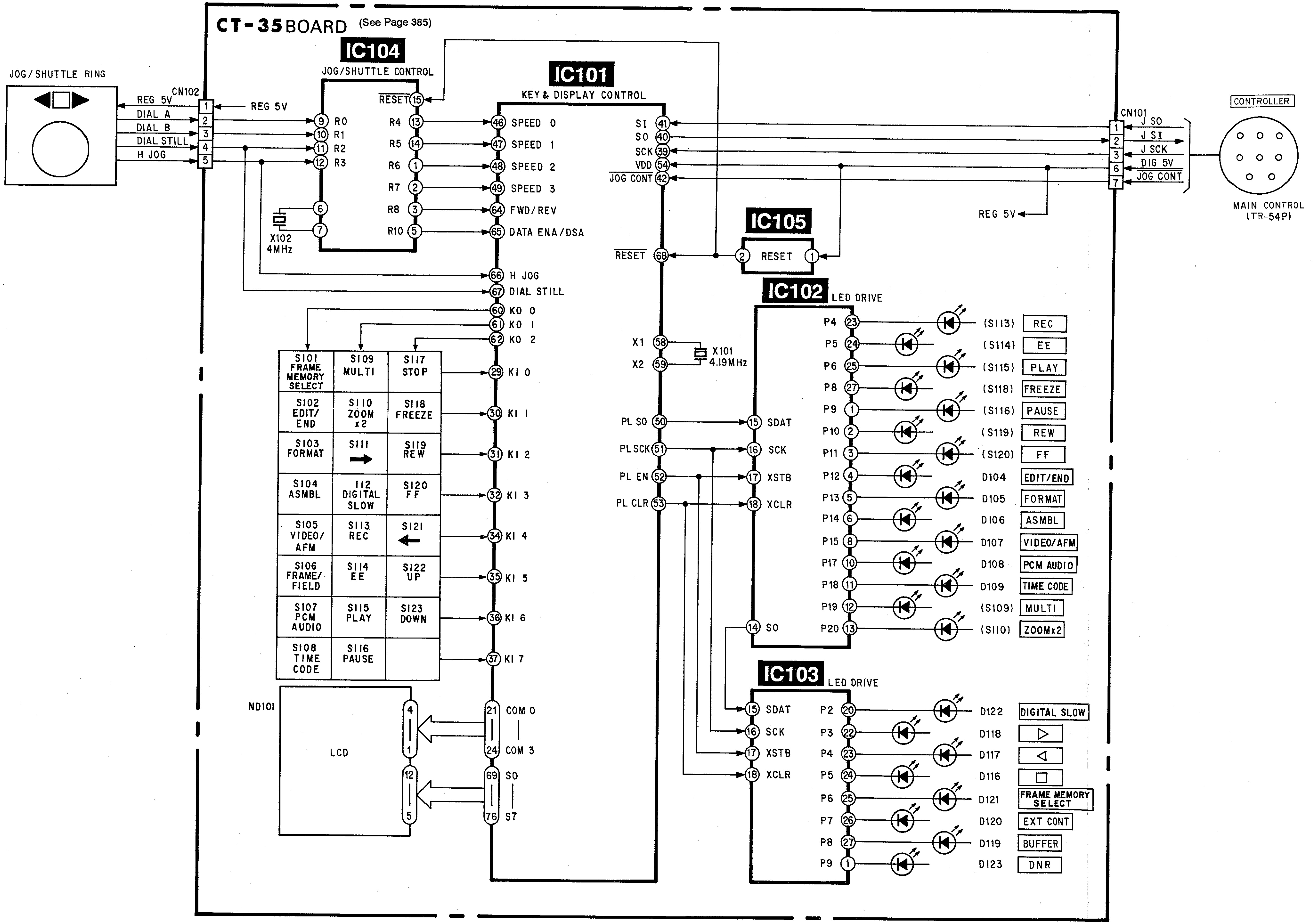
13 PCM AUDIO insert button and indicator (p.5-12)

Press this button to select the PCM audio insert editing mode. The indicator lights up.

14 TIME CODE insert button and indicator (p.5-15)

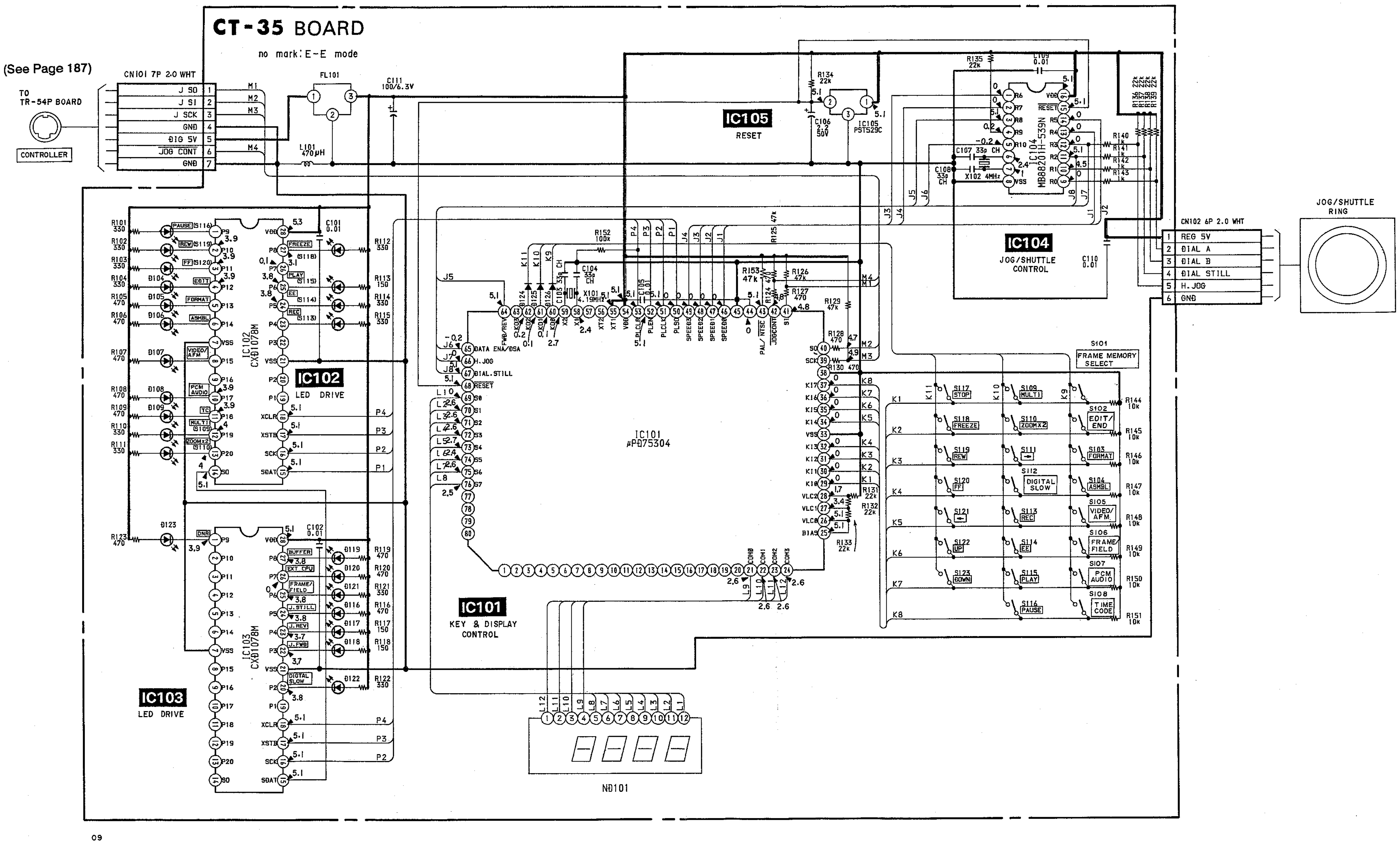
Press this button to select the time code insert mode. The indicator lights up.

REMOTE CONTROLLER BLOCK DIAGRAM


CT-35 BOARD (See Page 385)
JOG/SHUTTLE RING
CN102
REG 5V
DIAL A
DIAL B
DIAL STILL
H JOG
REG 5V
IC104
JOG/SHUTTLE CONTROL
RESET
R0
R1
R2
R3
R4
R5
R6
R7
R8
R10
X102
4MHz
IC101
KEY & DISPLAY CONTROL
SPEED 0
SPEED 1
SPEED 2
SPEED 3
FWD/REV
DATA ENA/DSA
H JOG
DIAL STILL
KO 0
KO 1
KO 2
KI 0
KI 1
KI 2
KI 3
KI 4
KI 5
KI 6
KI 7
COM 0
COM 3
S0
S7
SI
SO
SCK
VDD
JOG CONT
RESET
X1
X2
X101
4.19MHz
PL SO
PL SCK
PL EN
PL CLR
S101 FRAME MEMORY SELECT
S109 MULTI
S117 STOP
S102 EDIT/END
S110 ZOOM x2
S118 FREEZE
S103 FORMAT
S111 ➡
S119 REW
S104 ASMBL
112 DIGITAL SLOW
S120 FF
S105 VIDEO/AFM
S113 REC
S121 ⬅
S106 FRAME/FIELD
S114 EE
S122 UP
S107 PCM AUDIO
S115 PLAY
S123 DOWN
S108 TIME CODE
S116 PAUSE
ND101
LCD
IC105
RESET
IC102
LED DRIVE
SDAT
SCK
XSTB
XCLR
SO
P4
P5
P6
P8
P9
P10
P11
P12
P13
P14
P15
P17
P18
P19
P20
(S113) REC
(S114) EE
(S115) PLAY
(S118) FREEZE
(S116) PAUSE
(S119) REW
(S120) FF
D104 EDIT/END
D105 FORMAT
D106 ASMBL
D107 VIDEO/AFM
D108 PCM AUDIO
D109 TIME CODE
(S109) MULTI
(S110) ZOOMx2
IC103
LED DRIVE
SDAT
SCK
XSTB
XCLR
P2
P3
P4
P5
P6
P7
P8
P9
D122 DIGITAL SLOW
D118 ▷
D117 ◁
D116 □
D121 FRAME MEMORY SELECT
D120 EXT CONT
D119 BUFFER
D123 DNR
CN101
J SO
J SI
J SCK
DIG 5V
JOG CONT
REG 5V
CONTROLLER
MAIN CONTROL (TR-54P)

CT-35 (REMOTE CONTROL) SCHEMATIC DIAGRAM

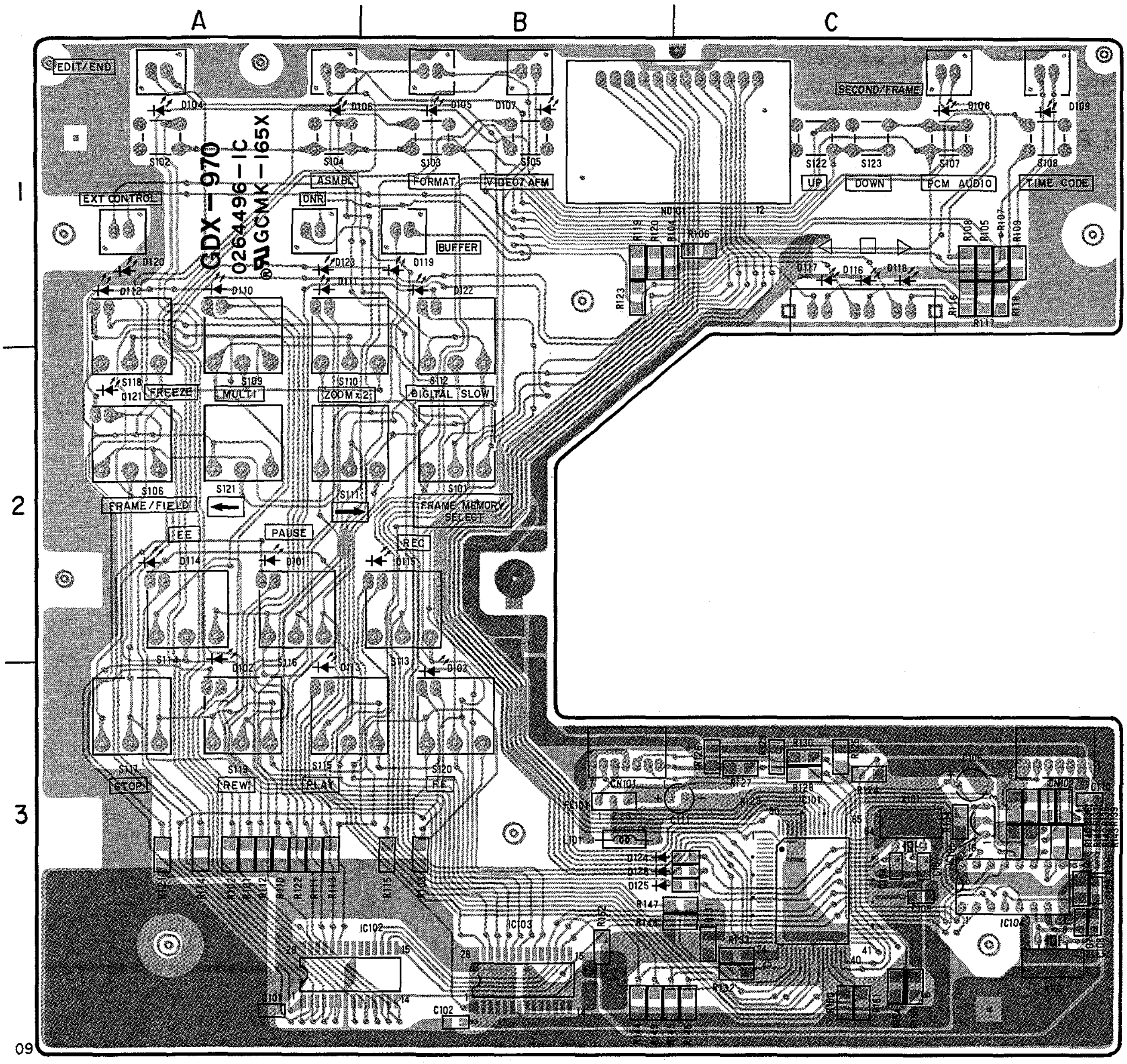
— Ref. No. CT-35 BOARD: 8000 series —


CT-35 BOARD
no mark: E-E mode
(See Page 187)
TO TR-54P BOARD
CONTROLLER
CN101 7P 2.0 WHT
J SO
J SI
J SCK
GND
DIG 5V
JOG CONT
GND
FL101
C111 100/6.3V
L101 470μH
IC105
RESET
IC105 PST529C
C106 2.2 50V
R134 22k
R135 22k
C109 0.01
IC104 MB88201H-539N
C107 33p CH
C108 33p CH
X102 4MHz
R140
R141
R142
R143
R136 22k
R137 22k
R138 22k
R139 22k
IC104
JOG/SHUTTLE CONTROL
C110 0.01
CN102 6P 2.0 WHT
REG 5V
DIAL A
DIAL B
DIAL STILL
H.JOG
GND
JOG/SHUTTLE RING
IC102 CXD1078M
IC102
LED DRIVE
C101 0.01
PAUSE S116
REW S119
FF S120
EDIT
FORMAT
ASMBL
VIDEO/AFM
PCM AUDIO
TC
MULTI S109
ZOOM×2 S110
FREEZE S118
PLAY S115
EE S114
REC S113
R101 330
R102 330
R103 330
R104 330
R105 470
R106 470
R107 470
R108 470
R109 470
R110 330
R111 330
R112 330
R113 150
R114 330
R115 330
D104
D105
D106
D107
D108
D109
D123
R123 470
IC103 CXD1078M
IC103
LED DRIVE
C102 0.01
DNR
BUFFER
EXT.CPU
FRAME/FIELD
J.STILL
J.REV
J.FWD
DIGITAL SLOW
D119
D120
D121
D116
D117
D118
D122
R119 470
R120 470
R121 330
R116 470
R117 150
R118 150
R122 330
IC101 μPD75304
IC101
KEY & DISPLAY CONTROL
R152 100k
C104 33p CH
C103 33p CH
X101 4.19MHz
C105 0.01
R153 47k
R126 47k
R127 470
R125 47k
R129 47k
R128 470
R130 470
R131 22k
R132 22k
R133 22k
DATA ENA/DSA
H.JOG
DIAL.STILL
RESET
S101
FRAME MEMORY SELECT
S117 STOP
S109 MULTI
S102 EDIT/END
S118 FREEZE
S110 ZOOM×2
S119 REW
S111
S103 FORMAT
S120 FF
S112 DIGITAL SLOW
S104 ASMBL
S121
S113 REC
S105 VIDEO/AFM
S122 UP
S114 EE
S106 FRAME/FIELD
S123 DOWN
S115 PLAY
S107 PCM AUDIO
S116 PAUSE
S108 TIME CODE
R144 10k
R145 10k
R146 10k
R147 10k
R148 10k
R149 10k
R150 10k
R151 10k
ND101
09

CT-35 (REMOTE CONTROL) PRINTED WIRING BOARD

— Ref. No. CT-35 BOARD: 8000 series —

CT-35 BOARD


A
B
C
1
2
3
09
EDIT/END
SECOND/FRAME
EXT CONTROL
ASMBL
FORMAT
VIDEO/AFM
DNR
BUFFER
UP
DOWN
PCM AUDIO
TIME CODE
GDX–970
0264496–IC
GCMK–165X
FREEZE
MULTI
ZOOM x 2
DIGITAL SLOW
FRAME/FIELD
FRAME MEMORY SELECT
EE
PAUSE
REC
STOP
REW
PLAY
FF
S101
S102
S103
S104
S105
S106
S107
S108
S109
S110
S111
S112
S113
S114
S115
S116
S117
S118
S119
S120
S121
S122
S123
D101
D102
D103
D104
D105
D106
D107
D108
D109
D110
D111
D112
D113
D114
D115
D116
D117
D118
D119
D120
D121
D122
D123
D124
D125
D126
ND101
IC101
IC102
IC103
IC104
CN101
CN102
C101
C102

CT-35 BOARD

D101	A-2
D102	A-3
D103	B-3
D104	A-1
D105	B-1
D106	A-1
D107	B-1
D108	C-1
D109	C-1
D110	A-1
D111	A-1
D112	A-1
D113	A-3
D114	A-2
D115	B-2
D116	C-1
D117	C-1
D118	C-1
D119	B-1
D120	A-1
D121	A-2
D122	B-1
D123	A-1
D124	B-3
D125	B-3
D126	B-3

IC101	C-3
IC102	A-3
IC103	B-3
IC104	C-3
IC105	C-3

〈 DIODE 〉

D104	8-719-980-83	DIODE	GL3PR43	(EDIT/END)
D105	9-902-578-11	DIODE	GL3HS43	(FORMAT)
D106	9-902-578-11	DIODE	GL3HS43	(ASMBL)
D107	9-902-578-11	DIODE	GL3HS43	(VIDEO/AFM)
D108	9-902-578-11	DIODE	GL3HS43	(PCM AUDUO)
D109	9-902-578-11	DIODE	GL3HS43	(TIME CODE)
D116	8-719-946-52	DIODE	GL8EG22	(□)
D117	8-719-946-84	DIODE	GL8HS22	(▷)
D118	8-719-946-84	DIODE	GL8HS22	(◁)
D119	9-902-578-11	DIODE	GL3HS43	(BUFFER)
D120	9-902-578-11	DIODE	GL3HS43	(EXT CONTROL)
D123	9-902-578-11	DIODE	GL3HS43	(DNR)
D124	8-719-023-50	DIODE		
D125	8-719-023-50	DIODE		
D126	8-719-023-50	DIODE		

〈 IC 〉

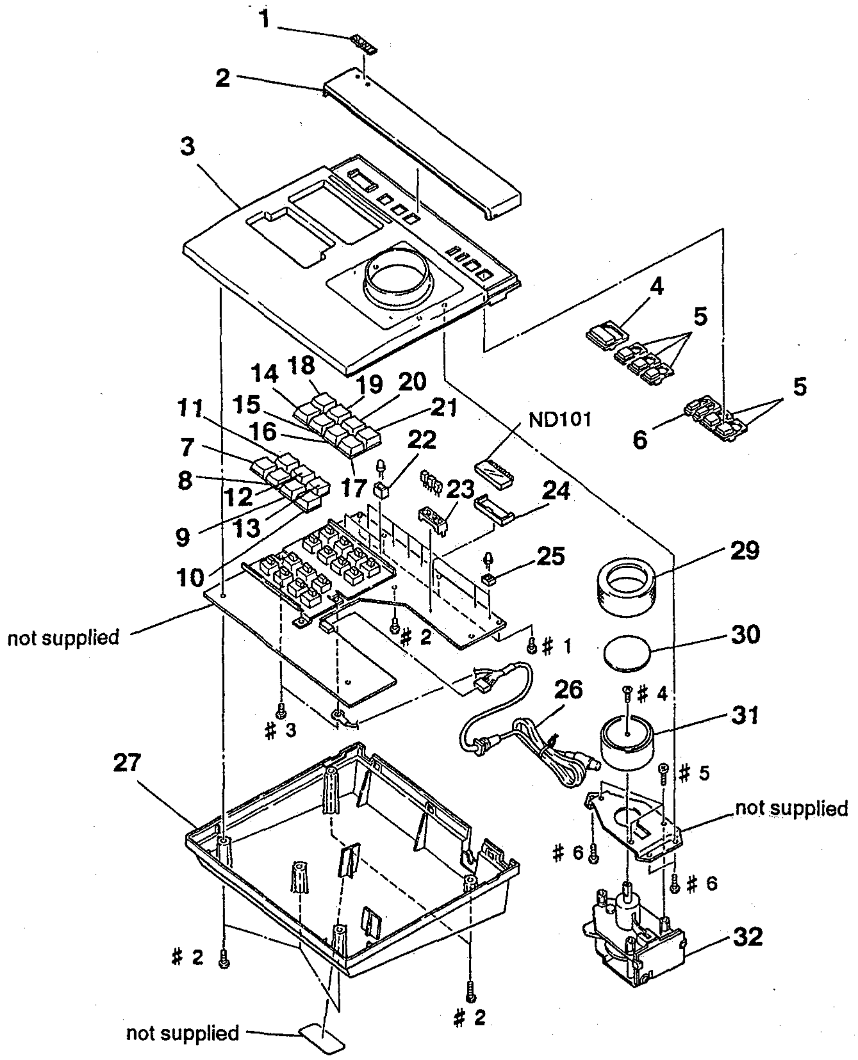
IC101	8-759-064-45	IC	uPD75304GF-249-389
IC102	8-759-937-21-33	IC	CXD1078M
IC103	8-759-937-21-33	IC	CXD1078M
IC104	8-759-937-29-33	IC	MB88201H-539N
IC105	8-759-995-76-33	IC	PST529C

EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) REMOTE CONTROLLER (RMT-9650)



Ref. No.	Part No.	Description	Remark
1	3-712-039-21	EMBLEM, SONY	
2	9-902-923-01	COVER	
3	9-902-557-11	CABINET ASSY, UPPER	
4	9-902-561-11	BUTTON (2), PUSH	
5	9-902-560-11	BUTTON (1), PUSH	
6	9-902-562-11	BUTTON (3), PUSH	
7	9-902-565-11	KEY TOP (STOP)	
8	9-902-566-11	KEY TOP (REW)	
9	9-902-567-11	KEY TOP (PLAY)	
10	9-902-568-11	KEY TOP (FF)	
11	9-902-569-11	KEY TOP (EE)	
12	9-902-570-11	KEY TOP (PAUSE)	
13	9-902-571-11	KEY TOP (REC)	
14	9-902-572-11	KEY TOP (FRAME/FIELD)	
15	9-902-573-11	KEY TOP (←)	
16	9-902-579-01	KEY TOP (→)	
17	9-902-580-01	KEY TOP (FRAME MEMORY SELECT)	
18	9-902-581-01	KEY TOP (FREEZE)	
19	9-902-582-01	KEY TOP (MULTI)	
20	9-902-583-01	KEY TOP (ZOOM X2)	
21	9-902-584-01	KEY TOP (DIGITAL SLOW)	
22	*9-902-589-01	HOLDER, LED (3)	
23	*9-902-587-01	HOLDER, LED (1)	
24	*9-902-586-01	HOLDER, LCD	
25	*9-902-588-01	HOLDER, LED (2)	
26	9-902-585-01	CODE	
27	9-902-558-11	CABINET ASSY, LOWER	
29	9-902-564-11	KNOB, RUBBER DIAL	
30	9-902-563-11	PLATE, KNOB	
31	*3-717-370-01	KNOB, DIAL	
32	A-6734-249-C	DIAL, SEARCH	
ND101	9-902-577-11	DISPLAY, LCD	

ELECTRICAL PARTS LIST

CT-35

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by refer-ence number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description	Remark
		CT-35 BOARD, COMPLETE ********************** (Ref. No 8000 Series)	
		< CAPACITOR >	
C101	1-163-031-91	CERAMIC CHIP 0.01uF 50V	
C102	1-163-031-91	CERAMIC CHIP 0.01uF 50V	
C103	1-163-239-91	CERAMIC CHIP 33PF 5% 50V	
C104	1-163-239-91	CERAMIC CHIP 33PF 5% 50V	
C105	1-163-031-91	CERAMIC CHIP 0.01uF 50V	
C106	1-123-612-91	ELECT 2.2uF 50V	
C107	1-163-239-91	CERAMIC CHIP 33PF 5% 50V	
C108	1-163-239-91	CERAMIC CHIP 33PF 5% 50V	
C109	1-163-031-91	CERAMIC CHIP 0.01uF 50V	
C110	1-163-031-91	CERAMIC CHIP 0.01uF 50V	
		< CONECTOR >	
CN101	1-564-017-11	PIN, CONNECTOR 7P	
CN102	1-564-016-21	PIN, CONNECTOR 6P	
		< DIODE >	
D104	8-719-980-83	DIODE GL3PR43 (EDIT/END)	
D105	9-902-578-11	DIODE GL3HS43 (FORMAT)	
D106	9-902-578-11	DIODE GL3HS43 (ASMBL)	
D107	9-902-578-11	DIODE GL3HS43 (VIDEO/AFM)	
D108	9-902-578-11	DIODE GL3HS43 (PCM AUDUO)	
D109	9-902-578-11	DIODE GL3HS43 (TIME CODE)	
D116	8-719-946-52	DIODE GL8EG22 (□)	
D117	8-719-946-84	DIODE GL8HS22 (▷)	
D118	8-719-946-84	DIODE GL8HS22 (◁)	
D119	9-902-578-11	DIODE GL3HS43 (BUFFER)	
D120	9-902-578-11	DIODE GL3HS43 (EXT CONTROL)	
D123	9-902-578-11	DIODE GL3HS43 (DNR)	
D124	8-719-023-50	DIODE	
D125	8-719-023-50	DIODE	
D126	8-719-023-50	DIODE	
		< FILTER >	
FL101	1-236-163-11	FILTER	

Ref. No.	Part No.	Description	Remark
		< IC >	
IC101	8-759-064-45	IC uPD75304GF-249-389	
IC102	8-759-937-21-33	IC CXD1078M	
IC103	8-759-937-21-33	IC CXD1078M	
IC104	8-759-937-29-33	IC MB88201H-539N	
IC105	8-759-995-76-33	IC PST529C	
		< INDICATOR >	
ND101	9-902-577-11	DISPLAY, LCD	
		< RESISTOR >	
R101	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R102	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R103	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R104	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R105	1-216-190-91	METAL GLAZE 470 5% 1/8W	
R106	1-216-190-91	METAL GLAZE 470 5% 1/8W	
R107	1-216-190-91	METAL GLAZE 470 5% 1/8W	
R108	1-216-190-91	METAL GLAZE 470 5% 1/8W	
R109	1-216-190-91	METAL GLAZE 470 5% 1/8W	
R110	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R111	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R112	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R113	1-216-178-91	METAL GLAZE 150 5% 1/8W	
R114	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R115	1-216-186-91	METAL GLAZE 330 5%	
R116	1-216-190-91	METAL GLAZE 470 5% 1/8W	
R117	1-216-178-91	METAL GLAZE 150 5% 1/8W	
R118	1-216-178-91	METAL GLAZE 150 5% 1/8W	
R119	1-216-190-91	METAL GLAZE 150 5% 1/8W	
R120	1-216-190-91	METAL GLAZE 150 5% 1/8W	
R121	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R122	1-216-186-91	METAL GLAZE 330 5% 1/8W	
R123	1-216-190-91	METAL GLAZE 150 5% 1/8W	
R124	1-216-190-91	METAL GLAZE 150 5% 1/8W	
R125	1-216-238-91	METAL GLAZE 47K 5% 1/8W	
R126	1-216-238-91	METAL GLAZE 47K 5% 1/8W	
R127	1-216-190-91	METAL GLAZE 150 5% 1/8W	
R128	1-216-190-91	METAL GLAZE 150 5% 1/8W	
R129	1-216-238-91	METAL GLAZE 47K 5% 1/8W	
R130	1-216-190-91	METAL GLAZE 150 5% 1/8W	

Ref. No.	Part No.	Description	Remark
R131	1-216-230-91	METAL GLAZE 22K 5% 1/8W	
R132	1-216-230-91	METAL GLAZE 22K 5% 1/8W	
R133	1-216-230-91	METAL GLAZE 22K 5% 1/8W	
R134	1-216-230-91	METAL GLAZE 22K 5% 1/8W	
R135	1-216-230-91	METAL GLAZE 22K 5% 1/8W	
R136	1-216-230-91	METAL GLAZE 22K 5% 1/8W	
R137	1-216-230-91	METAL GLAZE 22K 5% 1/8W	
R138	1-216-230-91	METAL GLAZE 22K 5% 1/8W	
R139	1-216-230-91	METAL GLAZE 22K 5% 1/8W	
R140	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R141	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R142	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R143	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R144	1-216-222-91	METAL GLAZE 10K 5% 1/8W	
R145	1-216-222-91	METAL GLAZE 10K 5% 1/8W	
R146	1-216-222-91	METAL GLAZE 10K 5% 1/8W	
R147	1-216-222-91	METAL GLAZE 10K 5% 1/8W	
R148	1-216-222-91	METAL GLAZE 10K 5% 1/8W	
R149	1-216-222-91	METAL GLAZE 10K 5% 1/8W	
R150	1-216-222-91	METAL GLAZE 10K 5% 1/8W	
R151	1-216-222-91	METAL GLAZE 10K 5% 1/8W	
R152	1-216-246-91	METAL GLAZE 100K 5% 1/8W	
		⟨ SWITCH ⟩	
S101	1-571-504-11	SWITCH, KEYBOARD (FRAME MEMORY SELECT)	
S102	9-902-574-11	SWITCH, TACT (EDIT/END)	
S103	9-902-574-11	SWITCH, TACT (FORMAT)	
S104	9-902-574-11	SWITCH, TACT (ASMBL)	
S105	9-902-574-11	SWITCH, TACT (VIDEO/AFM)	
S106	1-571-504-11	SWITCH, KEYBOARD (FRAME/FIELD)	
S107	9-902-575-11	SWITCH, TACT (PCM AUDIO)	
S108	9-902-575-11	SWITCH, TACT (TIME CODE)	
S109	9-902-575-11	SWITCH, KEYBOARD (MULTI)	
S110	9-902-575-11	SWITCH, KEYBOARD (ZOOM X2)	
S111	1-571-504-11	SWITCH, KEYBOARD (➡)	
S112	9-902-575-11	SWITCH, KEYBOARD (DIGITAL SLOW)	
S113	1-571-505-11	SWITCH, KEYBOARD (REC)	
S114	9-902-575-11	SWITCH, KEYBOARD (EE)	
S115	9-902-576-11	SWITCH, KEYBOARD (PLAY)	
S116	9-902-575-11	SWITCH, KEYBOARD (PAUSE)	
S117	1-571-504-11	SWITCH, KEYBOARD (STOP)	
S118	9-902-575-11	SWITCH, KEYBOARD (FREEZE)	
S119	9-902-575-11	SWITCH, KEYBOARD (REW)	
S120	9-902-575-11	SWITCH, KEYBOARD (FF)	
S121	1-571-504-11	SWITCH, KEYBOARD (⬅)	
S122	9-902-574-11	SWITCH, TACT (UP)	
S123	9-902-574-11	SWITCH, TACT (DOWN)	
		⟨ CRYSTAL ⟩	
X101	1-567-170-11	OSCILLATOR, CRYSTAL 4.19MHz	
X102	1-567-192-11	OSCILLATOR, CRYSTAL 4.00MHz	

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Ref. No.	Part No.	Description	Remark
		************* HARDWARE LIST *************	
# 1	7-685-533-19	SCREW +B 2.6X6	
# 2	7-685-647-19	SCREW +BVTP 3X10	
# 3	7-685-544-19	SCREW, TAPPING, +B 3X5	
# 4	7-621-592-00	SCREW +K 2.6X6	
# 5	7-682-548-09	SCREW +B 3X8	
# 6	7-685-546-19	SCREW, TAPPING, +B 3X8	